MONTHLY WEATHER REVIEW.

Editor: Prof. CLEVELAND ABBE.

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INTRODUCTION.

The REVIEW for July, 1895, is based on reports from about 2,884 stations occupied by regular and voluntary observers. These reports are classified as follows: 148 from Weather Bureau stations; 35 from U. S. Army post surgeons; 2,542 reports from State Weather Service and voluntary observers; 33 from Canadian stations; 96 through the Southern Pacific Railway Company; 30 from U. S. Life-Saving stations; monthly summaries from local services established in all States and Territories; and international simultaneous observations. Trustworthy newspaper extracts and special reports have also been used.

The WEATHER REVIEW is prepared under the general editorial supervision of Prof. Cleveland Abbe. Unless otherwise specifically noted, the text is written by the Editor, but the statistical tables are furnished by the Division of Records and Meteorological Data, in charge of Mr. A. J. Henry, chief of that division.

CLIMATOLOGY OF THE MONTH.

GENERAL CHARACTERISTICS.

The surface of the United States was generally covered by areas of high pressure, but the weather does not seem to have been warmer or drier than the normal; on the contrary, an unusual number of stations reported the occurrence of abnormally low minima and the deficits of accumulated temperatures continued to increase. The precipitation was deficient in the Lake Region and Ohio Valley. The water in the rivers was unusually low, except in the Red River, and the accumulated percentages of rainfall indicated impending drought. Numerous severe local storms of wind and rain occurred in the upper Mississippi Valley and the western slope of the Rocky Mountain Region.

ATMOSPHERIC PRESSURE.

[In inches and hundredths.]

The distribution of mean atmospheric pressure for the current month reduced to sea level, as shown by mercurial barometers not reduced to standard gravity and as determined from observations taken daily at 8 a. m. and 8 p. m. (seventy-fifth meridian time), is shown by isobars on Chart II. That portion of the reduction to standard gravity that depends on latitude is shown by the numbers printed on the right-hand border.

The *mean pressures* were highest in the South Atlantic and Gulf States and on the coast of Washington. The highest was 30.12, Key West; 30.11, Tampa, Jupiter and Titusville; 30.10, Fort Canby. The lowest mean pressures were in California, British Columbia, and Canada. The lowest was 29.82, Keeler.

The *current departures* from the adopted normal pressure for July show an excess in the South Atlantic and southern extremities of the Gulf States, and in Washington, Wyoming, and Nebraska. The greatest excess was Key West, 0.06. Pressure was deficient in a belt extending from southwestern Texas through northern Louisiana, Mississippi, Alabama, Georgia, South and North Carolina to Cape Henry, and in small regions on the Atlantic Coast from Nantucket to Atlantic City, at Fresno, and Yuma. The greatest deficit was Nantucket, 0.04.

As compared with the preceding month of June, the pressures reduced to sea level show a rise only in southern Florida, at Corpus Christi, and in a small region from El Paso to Pueblo. The maximum rise was Key West and Jupiter, 0.03. Throughout the rest of the country pressure fell. The maximum falls were: Sydney, Charlottetown, and Chatham, 0.16.

The systematic periodic diurnal variations of pressure are shown by the hourly means given in Table V.

HIGH AND LOW AREAS.

[By Prof. FRANK H. BIGELOW.]

The tracks of ten areas of high pressure, including the subdivision of Number IV, are plotted on Chart IV for the month of July. An inspection of the map shows that these originated or tended to linger in four distinct localities, viz: The North Pacific Coast, the South Atlantic Coast, the Lake Region, and the middle Rocky Mountain Slope, the latter being a place of dissipation of the highs. Thus, the water surfaces under the general high belt of middle latitudes, where it impinges upon the continent, were the places for highs to persist for many days in summer. The continuity of this belt is broken by the heated lands of the middle parts of the continent. The cooling of the air near the Lakes was also favorable for highs to form and to retain their position in that place during the current month.

The tracks of eleven areas of low pressure are plotted on Chart I. They prevail for the most part in the neighborhood of the northern circuit, or between the parallels 40° to 50°. The Rocky Mountain Slope, as far south as Kansas, was in some cases the source of a storm, and in a few others the place where they dissipated. The South Atlantic and the Gulf States appear not to have been visited by a distinct storm of any description.

HIGH AREAS.

I.—The month opened with a high area covering the Lake Region, with a relatively high barometer in the Mississippi Valley and over the South Atlantic States. Rain fell very generally in the Middle Atlantic States, the Ohio Valley, and

the Gulf States, during the 1st, with a few thunderstorms. On the 2d the high moved slowly eastward and became central over Lower Michigan. At the same time the rain areas passed to the coast line in the neighborhood of the Carolinas. The center of the high was formed on the 3d near Lake Erie, the high pressure covering all of the districts east of the Mississippi River, and with precipitation in southwestern portions over the lower Mississippi Valley. On the 4th the high retained nearly the same position, but the rain area extended northwestward up the Mississippi Valley. Another rain area formed over the North Atlantic Coast and the New England States. During the 5th the high moved rapidly northeastward, covering New England, central near the Bay of Fundy, the rain with thunderstorms continuing in New England, especially near the coast line. The temperature conditions were nearly stationary during these five days, except on the 4th, when there was a fall on the Middle Atlantic Coast caused by the movement of this high.

II.—A feeble area of high pressure occurring on the 1st over the South Atlantic States, and probably as a portion of I. It was active in causing the rains that fell in the Southern States.

III.—Also a feeble high in the same region during the 3d and 4th, showing very little movement, and doubtless a portion of the Atlantic area intruding upon the continent.

IV.—On the 5th a high area appeared on the Middle Pacific Coast, which passed to Oregon and Washington during the 6th and 7th, crossed the Mountains to South Dakota by the 8th, advanced to Kansas on the 9th, where it divided. The branch—

IV*a*.—Moved westward and covered Kansas during the 10th, 11th, and 12th, where it dissipated in western Nebraska; the other branch, IV*b* moved rapidly eastward to the Virginia coast, where it held during the 11th and 12th before breaking up. The progress of this area over the northern Rocky Mountain Slope seems to have been favorable to the production of showers in the Missouri Valley, which fell during the 7th and 8th. The break-up or division on the 10th was conducive to rain in the Southwestern States. This rainfall moved gradually eastward over the Gulf States and continued till the 12th in scattered localities, while the high held its place on the Atlantic Coast. A fall of temperature attended this high in the Missouri and Mississippi valleys on the 8th, the Lake Region and the Ohio Valley on the 9th, and the Atlantic districts on the 10th.

V.—This was a small area of high pressure on the South Atlantic Coast during the 12th and 13th; it occasioned some rain and thunderstorms in the eastern Gulf States at that time.

VI.—This area began to assert itself on the North Pacific Coast during the 14th, lingered in that region with some very uncertain movements till the 20th, when it rapidly passed over the middle plateau and slope to Colorado, where it disappeared on the afternoon of the 20th. It is a good example of the influence of the ocean in forming and maintaining a high in this position for at least 6 days, yet it was unaccompanied by any weather characteristics till the 20th, when by its eastward movement it caused thunderstorms and rain generally in the lower Missouri Valley on the 19th, and further eastward, especially in the middle Mississippi and Ohio valleys on the 20th, the list of local storms being very long on that date. There was a marked rise in temperature over the Plateau on the 14th, but otherwise the temperature ranges were not noteworthy.

VII.—This was an eastern area of high pressure at first central over the lower Lakes, but covering the Atlantic States generally during the period from the 18th to the 24th. On the 19th the center moved to the coast near New Jersey, and thence proceeded southward, reaching Carolina by the 20th, and Florida by the 21st, where it held until the 24th, forming a part of the usual Atlantic high. Showers and local storms occurred in the Gulf States on the 22d, 23d, 24th, 25th. The effect of this high was to cause quite continuous precipitation along its northern border. It is on the whole to be remarked that many of the summer rains occur in the midst of or on the borders of the highs, this condition being really as favorable to the production of precipitation as the low areas to which rain is ordinarily attributed.

VIII.—Formed during the 20th on the North Pacific Coast. Moved rapidly eastward over the northern boundary to the Dakotas on the 21st, causing a few showers in North Dakota. On the 22d it passed southward along the mountain slope to Nebraska, the cooler air producing precipitation in the lower Missouri Valley, and generally over the Gulf States. During the 23d and 24th it lingered over Iowa and Kansas, the rain area at the same time extending to the Carolina coast in the neighborhood of the thirty-fifth and fortieth parallels. By the afternoon of the 25th the center of the high reached the Gulf coast in eastern Texas and dissipated in the Gulf States during the 26th, causing some heavy rains in the Carolinas.

IX.—On the 27th a high formed to the northwest of the Lakes and moved rapidly south to Indiana on the 28th, when it spread out and dissipated over the eastern districts. Its advance caused general showery conditions with thunderstorms in the lower Lake Region and the Ohio Valley. There was a decided fall of temperature in the upper Ohio Valley on the 27th.

X.—Formed on the mountain slope to the north of Montana on the morning of the 29th, moved southeastward to Lake Superior on the 30th, and then remained stationary in eastern Minnesota on the 31st, being central near La Crosse at the end of the month. Showery conditions began in the upper Mississippi Valley on the 29th, and extended over the Ohio Valley on the 30th, and even to the South Atlantic States by the evening of that day, the precipitation ceasing for the most part on the 31st. On the 30th the temperature fall was decided over the Lakes, and the cooler weather covered the Middle States and New England during the 31st.

AREAS OF LOW PRESSURE.

I.—Appeared on the Rocky Mountain Slope north of Montana on the 1st, lingered in the north Montana region during the 2d, 3d, and 4th, with very little movement, but on the 5th it passed over the Dakotas to Kansas, where it disappeared on the 6th. There were no important features developed, and the precipitation was very light near the central portions of the storm.

II.—Began on the 6th in North Dakota, moved directly eastward in the usual track, crossing the Lakes on the 7th and 8th, then passed down the Saint Lawrence Valley and disappeared near Nova Scotia during the 10th. On the 6th there was quite a large precipitation in North Dakota, and to the northwestward, in the rear of the storm, and this followed to the Lakes, but in passing the Lakes on the 8th the rain area changed to the southeast quadrant and advanced before the center. This shift of the area of rain relatively to the center, from being to the northwest of it in the Dakota region to being southeast of it in the Ohio Valley, is a very commonly observed feature of the northern storms in winter as well as in summer. It argues decidedly against the opinion sometimes urged that the storm moves to the region of greatest rainfall. This latter view may be one more case of the substitution of an effect produced by many causes for the real cause of storm movement.

III.—This storm followed precisely the same course as II, originating in the Saskatchewan Valley on the 10th, and moving over the Lakes on the 11th and 12th to Maine, where it dissipated on the 14th. The precipitation was very light

even near the center till it reached New England, when a marked group of thunderstorms took place during the afternoon of the 13th in the southwestern quadrant.

IV.—Pursued a very regular track from the Pacific to the Atlantic Coast in the northern circuit. It originated in Oregon on the 11th, passed up the Columbia River Valley on the 11th and 12th, and down the Saskatchewan Valley on the 13th and 14th, thence over the Lakes on the 15th and 16th, the Saint Lawrence River on the 17th and 18th, to Nova Scotia on the 19th, where it disappeared as a distinct center. The storm remained dry till the 14th, when local storms occurred in the Mississippi Valley, and then advanced to the south and east of it giving general showers in the Ohio Valley and the Atlantic States on the 15th and 16th, while the center was in the upper Lake Region, after which the precipitation advanced to New England, while the center was in the lower Lake Region on the 17th, the weather being clear during the movement of the center to the coast line.

V.—This was one of short durations beginning in Utah on the 17th, moving eastward over South Dakota, thence south to Kansas on the 18th, and dying out in Illinois on the 19th. Its progress did not sensibly influence the temperature and precipitation.

VI.—Moved from Utah on the 19th to the Gulf of St. Lawrence on the 24th, passing South Dakota and Iowa on the 20th, the Lake Region on the 21st, New England on the 22d, where, after some delay in the interior, it finally moved to Newfoundland. On the 20th a series of local storms covered the middle Mississippi and Ohio valleys; on the 21st the precipitation took place in the Middle States, and on the 22d in New England.

VII.—Moved quite rapidly from the one hundred and twentieth meridian north of Montana on the 23d to the Gulf of St. Lawrence on the 29th, crossing Montana on the 25th, the Dakotas on the 26th to western Iowa, the States of Illinois, Indiana, Ohio, and New York on the 27th, passing the New England Coast on the 28th to Nova Scotia, near whose northern extremity it disappeared. When the center was in Iowa showers began in the Ohio Valley on the 26th, which covered the lower Lake Region and the Middle States on the 27th, and New England on the 28th.

VIII.—Appeared in the upper St. Lawrence Valley on the 24th, passed down the river, thence turned abruptly south to Maine, and finally reached the Gulf of St. Lawrence on the 26th.

IX.—Formed on the northern Plateau near Washington on the 26th, moved to west Dakota on the 27th, near which place it delayed a day, passed over Nebraska and Kansas on the 29th, and to Oklahoma on the 30th, where it disappeared. In its course it followed closely the eastern edge of the high ground of the Plateau. It presented no noteworthy features.

X.—First formed near Lake Huron on the 29th, moved eastward to northern New England on the 30th, and thence northward to the lower St. Lawrence Valley, where it was at the end of the month. On the 30th extensive local storms covered New England and the Middle Atlantic States.

XI.—This low occupied the extreme northwestern districts to the north of Montana on the 29th, 30th, and 31st, without any special movements, being accompanied by very little precipitation.

MOVEMENT OF CENTERS.

The following table shows the date and location of the center for the beginning and ending of each area of high or low pressure that has appeared on the U. S. weather maps during the month, together with the average daily and hourly velocities. The monthly averages are computed in two ways; first, by considering each path as a unit, and second, by giving equal weight to each day of observation:

Movement of centers of areas of high and low pressure.

Number.	First observed.			Last observed.			Path.		Average velocities.	
	Date.	Lat. N.	Long. W.	Date.	Lat. N.	Long W.	Length.	Duration.	Daily.	Hourly.
High areas.		°	°		°	°	*Miles.*	*Days.*	*Miles.*	*Miles.*
I	1, a. m.	49	86	5, p. m.	45	66	1,600	4.5	355	14.6
II	1, a. m.	30	85	1, p. m.	28	82	260	0.5	520	21.6
III	3, a. m.	30	81	4, p. m.	31	81	370	1.5	247	10.3
IV *a*	5, a. m.	41	124	12, p. m.	40	102	3,230	7.5	431	17.9
IV *b*	10, a. m.	39	94	12, a. m.	39	74	1,070	2.0	535	22.2
V	12, p. m.	35	77	13, p. m.	31	83	540	1.0	540	22.4
VI	14, a. m.	45	124	20, p. m.	39	104	2,310	6.5	355	14.7
VII	18, a. m.	45	86	24, a. m.	26	80	2,020	6.0	337	14.0
VIII	20, p. m.	50	124	25, p. m.	30	94	3,520	5.0	704	29.2
IX	27, a. m.	49	96	28, a. m.	41	86	740	1.0	740	30.7
X	29, a. m.	50	106	31, p. m.	44	92	1,010	2.5	404	16.8
Sums							16,670	38.0	5,168	
Mean of 11 paths									470	19.5
Mean of 38 days									431	17.9
Low areas.										
I	1, a. m.	53	108	6, a. m.	38	99	1,900	5.0	380	15.8
II	6, a. m.	50	103	10, a. m.	45	64	2,080	4.0	520	21.6
III	10, p. m.	53	104	14, a. m.	45	69	1,750	3.5	500	20.8
IV	11, a. m.	44	123	19, a. m.	46	60	3,500	8.0	438	18.2
V	17, a. m.	49	112	19, a. m.	41	88	1,690	2.0	845	35.1
VI	19, a. m.	39	112	24, a. m.	47	60	3,040	5.0	608	25.3
VII	23, p. m.	51	120	29, a. m.	48	61	3,800	5.5	691	28.7
VIII	24, p. m.	46	75	26, a. m.	48	64	800	1.5	533	24.6
IX	26, p. m.	51	115	30, a. m.	36	97	1,860	3.5	531	22.0
X	29, a. m.	47	83	31, p. m.	49	71	800	2.5	320	13.3
XI	29, p. m.	51	116	31, p. m.	51	107	570	2.0	285	11.9
Sums							21,880	42.5	5,711	
Mean of 11 paths									519	21.6
Mean of 42.5 days									515	21.4

LOCAL STORMS.

[By Mr. A. J. HENRY.]

During the period between July 3 and July 8, the eastern slope of the Rocky Mountains from central Kansas to the Lakes, and southerly from Iowa to central Texas, was visited by storms that caused great loss of human life in two or more localities, and wide-spread and enormous destruction of property. Railroad embankments and bridges were washed away, farms and villages flooded, and at two points violent winds added their destructive powers, killing and maiming, and also tearing buildings to pieces.

The casualties approached 100, including over forty deaths. Conservative estimates place the loss of property during the four days at more than a million dollars. Growing crops were at their best, the wheat harvest had begun, and the season had so far passed as to preclude reseeding.

Isolated thunderstorms occurred in Colorado, Kansas, Arkansas, Louisiana, Mississippi, and northern Texas, as early as the 2d. On the 3d the rain and thunderstorm area extended as a broad belt from western Kansas southeasterly to western Georgia and Florida. On the 4th the weather had cleared in western Kansas, but otherwise the same conditions prevailed as on the previous day.

The rainfall was general over Missouri and southeastern Kansas, Indian Territory, and northern Arkansas. The fall at Birch Tree, in southern Missouri, is given at 6 inches; at Fort Scott, Kans., 4.19; at Beloit, Kans., 6; at Topeka, Kans., from 8 o'clock p. m. to midnight, 3.02.

On the afternoon of the 5th a tornado swept over Baxter Springs, Kans., followed by a deluge of rain. Five persons were killed outright, and more than double that number were injured, some fatally; churches, schoolhouses, business structures, dwellings, and barns, with the contents of all, were destroyed.

On the same evening a cloudburst brought death and desolation to Winona, Mo. Rain began falling about 10 o'clock, and an hour later a small stream passing through the town had become a raging torrent that submerged the village near its

banks to a depth of four feet. Twelve were drowned and many others received severe injuries. Only the lightning flashes enabled the frightened inhabitants to partly see and avoid the dangers that surrounded them. Buildings standing on high ground or in the outskirts of the town alone escaped. Loss of life and property from violent storms on the same date occurred in other towns in Missouri, Kansas, and Arkansas.

On the 7th rain was reported from central Kansas to the Ohio River and southeasterly to Florida, and was quite generally accompanied by winds of great velocity. In Putnam and Morgan counties, Ga., several lives were lost and many injuries sustained. In many localities within the States of Tennessee, Texas, Missouri, and Kansas, wind and rain destroyed crops, fruit trees, and small buildings, inflicting large damage in the aggregate, although serious local disaster was not sustained.

About 6 p. m. of this date Chicago was visited by a furious storm of wind and rain. One man was drowned by the upsetting of a boat in the Lake, where the wind imperiled many craft. Several persons were injured by flying timber and glass, many large plate windows being hurled through the air. On Lake Geneva, Wis., a steam launch was swamped and the six occupants drowned.

From the 9th to the 13th no destructive storms were reported. On the afternoon of the 13th a tornado swept over the country in the vicinity of the City of New York. Fatalities occurred at Woodhaven, L. I., and Cherry Hill, N. J. The last-named town was practically demolished; three persons were killed and many more were hurt; 25 families were left homeless, and other losses of property resulted.

At Woodhaven one person was killed, nearly thirty were injured, and a large amount of property was destroyed. In these cases the devastation was wrought in the space of but a few minutes. The wind was preceded by hail, and thunder and lightning accompanied the violent rainfall. Damages to growing crops during these storms were reported in the southern parts of Massachusetts and Connecticut.

On the night of the 16th and morning of the 17th a severe rain and windstorm did large damage in central Illinois. It was the most disastrous within many years at Peoria, Bloomington, and Dixon, Ill., and extended into Indiana and Missouri.

Late on the 18th and early on the 19th, heavy rainfall occurred in Iowa, Minnesota, Kansas, and Illinois. Precipitation was unusually heavy at St. Paul and Winona, Minn.; Iowa City and Iowa Falls, Iowa; Paris, Trenton, and Marshall, Mo.; and Pekin and Peoria, Ill. Wind was destructive at Pekin, and serious damage resulted from overflowing streams in Iowa. Storms of unusual severity, though of circumscribed area, were reported in southeastern Wisconsin and eastern Kansas.

On the afternoon of the 19th rain, succeeded by hail and terrific winds, wrought losses in the Ohio oil fields near Findlay, amounting to $500,000 within the town, and injured property in the surrounding country to about the same extent. The city of St. Clair, Mich., was visited by a storm of like character, and but little less violence, about the same hour. One death was caused and damages to property estimated at $15,000. Heavy rain, with thunder and lightning, all of unusual violence, were reported from various towns in Indiana, Iowa, Illinois, and Tennessee.

On the afternoon of the 20th the eastern suburbs of Baltimore and the adjoining county were swept by wind of 70 miles an hour. Buildings were destroyed and one child was killed. The track was about 600 yards wide. A blinding rain accompanied the wind. A tornado on the same day destroyed property in the counties of Sullivan, Ulster, and Orange, N. Y.; New York City was also touched. In Ottertail County, Minn., on the same afternoon, buildings were destroyed, injuries, supposed to be fatal, sustained, and large losses visited upon growing grain and farm property.

On the afternoon of the 22d the newspapers reported 5 inches of rain as having fallen at Silver City, N. Mex., and that a large portion of the town had been carried away by the flood. Similar storms, of lesser though destructive energy, occurred on the same day at various localities in Illinois, Kentucky, Ohio, Indiana, and Pennsylvania. In Hamilton County, Ohio, a destructive wind attended the rain, unroofing buildings and tearing up trees. Farm animals were drowned, and deaths from lightning were reported. In central Pennsylvania the flood of rain inundated farms and in the coke regions the losses were enormous, involving coke ovens, bridges, railroads, and highways.

On the 25th a tornado struck the town of Baird, near Fort Worth, Tex., killing one man and wrecking several buildings. On the same day hail did damage to the extent of several hundred dollars in central New York and near Marshalltown, Iowa.

Disastrous storms occurred on the 26th and 27th in North Dakota, eastern Missouri, Iowa, Illinois, and Indiana. On the 26th hail in four counties destroyed many thousand acres of wheat, and a tornado followed, killing one man and adding largely to the loss of property. The storm track was estimated at 200 miles in length, and, at places, 4 in width. At Kewanee, Henry County, Ill., a terrific thunderstorm, attended by wind of great violence, left marks upon nearly every house in the town. Several buildings were unroofed and otherwise seriously damaged, leaving the contents at the mercy of the drenching rain.

The counties of Bureau, Peoria, Marshall, Woodford, and Whiteside, Illinois, sustained severe losses from the same storm, the agencies being wind, rain, and lightning.

On the 27th very nearly 2.50 inches of rain fell within four hours at St. Louis. A wind of great velocity prevailed for about two hours at various points in central Ohio and Indiana. Buildings were injured, growing crops destroyed, and farm animals killed.

On the 29th storms of unusual severity occurred at points in Oklahoma, Colorado, Kansas, Iowa, and Missouri.

One of the heaviest rains recorded at Denver was on the 30th, when 0.9 inch fell within twenty-five minutes. Streets were flooded, horse cars stopped, and lightning did damage reckoned at $5,000.

On the 31st Socorro, N. Mex., was overwhelmed by water pouring from a cloud-burst on the mountain side above the city. Six lives were lost, and the losses in and near the town were estimated at more than $100,000. A similar disaster, from the same cause, was reported on that date from Casper, Wyo.; two persons were drowned, but the damage to property was less than at Socorro.

TEMPERATURE OF THE AIR.

[In degrees Fahrenheit.]

The mean temperature is given for each station in Table II, for voluntary observers, but both the mean temperatures and the departures from the normal are given for the current month for the regular stations of the Weather Bureau in Table I.

The *monthly mean temperature* published in Table I, for the regular stations of the Weather Bureau, is the simple mean of all the daily maxima and minima; for voluntary stations a variety of methods of computation is necessarily allowed, as shown by the notes appended to Table II.

The *distribution* of the monthly mean temperature of the air over the United States and Canada is shown by the dotted isotherms on Chart II; the lines are drawn over the high irregular surface of the Rocky Mountain Plateau, although the temperatures have not been reduced to sea level, and the isotherms, therefore, relate to the average surface of the

country occupied by our observers; such isotherms are controlled largely by the local topography, and should be drawn and studied in connection with a contour map.

The highest mean temperatures were: Yuma, 89.2; Tucson, 87.0; Corpus Christi, 84.0. The lowest mean temperatures were: Point Reyes Light, 54.6; East Clallam, 55.6; Tatoosh Island and Eureka, 56.0.

The *regular diurnal period* in temperature is shown by the hourly means given in Table IV for all stations having self-registers.

The *current departures* from the adopted normal temperatures for July show an excess only in Nova Scotia, New Brunswick, and on the northern coasts of California and Washington. The greatest excesses were: Chatham, 2.6; and Sydney, 2.2. The temperature was generally deficient over the rest of the country, the greatest deficiency being: Lander, 5.8; Cheyenne, 5.4; Pueblo and Washington, 4.8.

Considered by districts, the current departures from normal temperatures are as given in Table I. There were no positive departures. The greatest negative departures were: Abilene (southern slope), 3.9; middle slope, 3.7; Middle Atlantic, northern slope, and southern plateau, 3.1.

The *accumulated monthly departures* from normal temperatures from January 1 to the end of the current month are given in the second column of the following table, and the average departures are given in the third column, for comparison with the departures of current conditions of vegetation from the normal conditions.

Districts.	Accumulated departures.		Districts.	Accumulated departures.	
	Total.	Average.		Total.	Average.
	°	°		°	°
North Dakota	+ 5.4	+ 0.8	New England	− 3.6	− 0.5
Middle plateau	+ 6.0	+ 0.9	Middle Atlantic	−12.8	− 1.8
North Pacific	+ 0.2	+ 0.0	South Atlantic	−18.3	− 2.6
Missouri Valley	0.0	0.0	Florida Peninsula	−12.8	− 1.8
			East Gulf	−19.0	− 2.7
			West Gulf	−17.9	− 2.6
			Ohio Valley and Tenn.	−15.9	− 2.3
			Lower Lakes	− 7.5	− 1.1
			Upper Lakes	− 1.1	− 0.2
			Upper Mississippi	− 4.5	− 0.6
			Northern slope	− 9.0	− 1.3
			Middle slope	− 8.0	− 1.1
			Southern slope (Abilene)	−19.4	− 2.8
			Southern plateau	− 8.1	− 1.2
			Middle plateau	− 8.6	− 1.2
			Middle Pacific	− 1.8	− 0.3
			South Pacific	− 4.4	− 0.6

The *years of highest and lowest mean temperature* for previous years in July are shown in Table I of the REVIEW for July, 1894. The mean temperature for the current month was not the highest on record at any regular station of the Weather Bureau. It was the lowest on record at: Pueblo, Denver, Fresno, Salt Lake City, Winnemucca, Idaho Falls, and Walla Walla.

The *maximum and minimum temperatures* of the current month are given in Table I. The highest maximum was: Yuma, 113. The lowest maximum: Tatoosh Island, 73.

The highest minimum was: Corpus Christi, 76; the lowest minima, Port Crescent, 35, and Havre, 36.

The *years of highest maximum and lowest minimum temperatures* are given in the last four columns of Table I of the current REVIEW. During the present month the maximum temperatures were the highest on record at: Parkersburg, Sandusky, Fort Canby, and Astoria. The minimum temperatures were the lowest on record at: Block Island, New York, Baltimore, Washington, Cape Henry, Louisville, Columbus, Ohio, Cleveland, Sandusky, Detroit, Port Huron, Sault Ste. Marie, Chicago, Milwaukee, Green Bay, Duluth, St. Paul, La Crosse, Dubuque, Des Moines, Kansas City, Concordia, Sioux City, Miles City, Baker City, Pueblo, Abilene, and Jupiter.

The *greatest daily range of temperature and the extreme monthly range* are given for each of the regular Weather Bureau stations in Table I, which also gives data from which may be computed the extreme monthly ranges for each station. Among the greatest daily ranges the large values were: Huron, 49; Idaho Falls, 47; Winnemucca, 46; Lander, 44. The small values were: Port Eads, 11; Corpus Christi, 12; Key West, 15; Hatteras, Block Island, Woods Hole, and Nantucket, 17. Among the extreme monthly ranges the large values were: Havre and Idaho Falls, 59; Huron, 58; Concordia, 57; Sioux City and Walla Walla, 56. The small values were: Corpus Christi, 13; Port Eads and San Diego, 17; Key West, 18.

No *injurious frosts* were reported during July.

MOISTURE.

The *quantity of moisture* in the atmosphere at any time may be expressed by means of the weight contained in a cubic foot of air, or by the tension or pressure of the vapor, or by the temperature of the dew-point. The mean dew-points for each station of the Weather Bureau, as deduced from observations made at 8 a. m. and 8 p. m., daily, are given in Table I.

The *rate of evaporation* from a special surface of water on muslin at any moment determines the temperature of the wet-bulb thermometer, but a properly constructed evaporometer may be made to give the *quantity* of water evaporated from a similar surface during any interval of time. Such an evaporometer, therefore, would sum up or integrate the effect of those influences that determine the temperature as given by the wet bulb; from this quantity the *average humidity of the air* during any given interval of time may be deduced.

The *sensible temperature* experienced by the human body and attributed to the atmosphere depends not merely upon the temperature of the air, but equally upon the dryness and the wind. The temperature of the wet-bulb thermometer as obtained by the whirling apparatus used in the shaded shelter corresponds to the temperature felt by persons standing in the shade of trees or houses, exposed to a natural breeze of at least 6 miles per hour. This temperature and its depression below the dry bulb are the fundamental data for all investigations into the relation between human physiology and the atmosphere. In order to present a monthly summary of the atmospheric conditions from a hygienic and physiological point of view, Table VIII has been prepared, showing the maximum, minimum, and mean readings of the wet-bulb thermometer at 8 a. m. and 8 p. m., seventy-fifth meridian time.

PRECIPITATION.

[In inches and hundredths.]

The *distribution of precipitation* for the month of July, 1895, as determined by reports from about 2,500 stations, is exhibited on Chart III. The numerical details are given in Tables I, II, and III. The precipitation for the current month was heaviest, over 12 inches, in Florida and western Missouri, and nearly 12 in southern Louisiana, but least, averaging less than 0.5, over the Rocky Mountain Plateau Region, California, Oregon, and the interior of Washington.

The *normal distribution of precipitation* for each month is shown in the Atlas of Bulletin C, entitled "Rainfall and Snow of the United States, compiled to the end of 1891, with annual, seasonal, monthly, and other charts."

The *diurnal variation* is shown by Table XII, which gives the total precipitation for each hour of seventy-fifth meridian time, as deduced from self-registering gauges kept at about 43 regular stations of the Weather Bureau; of these 37 are float gauges and 6 are weighing gauges.

The *current departures* from the adopted normal precipitation for July are given in Table I, which shows that precipi-

tation was decidedly in excess in the middle and southern slopes of the Rocky Mountains, Missouri, Alberta, and Saskatchewan; it was decidedly deficient in the Lake Region, the Ohio Valley, and the Atlantic and east Gulf States. The largest excesses were: Fort Smith, 11.2; Kansas City, 5.8; Block Island, 5.4; Hannibal, 4.9; Pueblo, 4.7; Jacksonville, 4.6. The principal deficits were: Key West, 3.8; Charlotte and Harrisburg, 3.1; Norfolk, 2,8; Cleveland, Pittsburg, and Alpena, 2.7.

The *average departure* for each district is also given in Table I. By dividing these by the respective normals the following corresponding percentages are obtained (precipitation is in excess when the percentages of the normal exceeds 100): Above the normal: New England, 124; South Atlantic, 105; west Gulf, 155; Ohio Valley and Tennessee, 105; upper Mississippi, 132; Missouri Valley, 117; middle slope, 150; Abilene (southern slope), 284; southern Plateau, 141. Normal: Middle Plateau, 100; Southern Pacific, 100. Below the normal: Middle Atlantic, 75; Florida Peninsula, 80; east Gulf, 71; lower Lake, 83; upper Lake, 50; North Dakota, 96; northern slope, 66; northern Plateau, 60; North Pacific, 82.

The *years of greatest and least precipitation* are given in the REVIEW for July, 1894. The precipitation for the current month was the greatest on record at Pueblo, Abilene, Topeka, Kansas City, Springfield, Mo., Fort Smith, Chattanooga, Block Island, Nantucket, and Vineyard Haven. It was the least on record at Carson City, Corpus Christi, Green Bay, Alpena, and Harrisburg.

The *total accumulated monthly departures* from normal precipitation from the beginning of the year to the end of the current month are given in the second column of the following table; the third column gives the ratio of the current accumulated precipitation to its normal value.

Districts.	Accumulated departures.	Accumulated precipitation.	Districts.	Accumulated departures.	Accumulated precipitation.
Excesses.	*Inches.*	*Per ct.*	*Deficits.*	*Inches.*	*Per ct.*
South Atlantic	+ 0.60	102	New England	— 3.20	88
North Dakota	+ 0.90	107	Middle Atlantic	— 2.70	90
Northern slope	+ 0.30	103	Florida Peninsula	— 2.10	92
Abilene (southern slope)	+ 4.20	125	East Gulf	— 2.00	94
Southern plateau	+ 0.90	117	West Gulf	— 1.10	96
			Ohio Valley and Tenn.	— 7.10	76
			Lower Lakes	— 6.50	67
			Upper Lakes	— 5.70	70
			Upper Mississippi	— 5.40	75
			Missouri Valley	— 3.20	85
			Middle slope	— 0.90	94
			Middle plateau	— 0.60	92
			Northern plateau	— 3.30	70
			North Pacific	— 0.50	98
			Middle Pacific	— 2.20	89
			South Pacific	— 2.20	76

Details as to excessive precipitation are given in Tables XIII and XIV.

The total snowfall at each station is given in Table II.

HAIL AND SLEET.

The following are the dates on which hail fell in the respective States:

Arizona, 2, 20, 21. Arkansas, 7, 20. Colorado, 2, 6, 9 to 13, 17, 20, 26, 30. Connecticut, 13, 30. Florida, 29. Georgia, 8. Idaho, 5, 8, 30, 31. Illinois, 7, 8, 14, 16 to 19, 24, 26, 27. Indiana, 15, 18. Iowa, 7, 14, 16, 17, 18, 20, 25, 26, 28, 29. Kansas, 4, 7, 13, 19 to 22, 28. Kentucky, 20, 30. Maryland, 5, 16, 19, 21. Massachusetts, 12, 13, 27, 30. Michigan, 7, 29. Minnesota, 5, 6, 18, 24. Mississippi, 18. Missouri, 5, 14, 15, 17, 18, 19, 27, 28, 29. Montana, 2, 4, 7, 15, 17, 19, 22, 28, 30, 31. Nebraska, 4, 7, 13, 14, 16, 17, 18, 25, 26, 28, 29. Nevada, 20, 31. New Hampshire, 13, 16. New Jersey, 13, 27. New Mexico, 10, 11, 13. New York, 13, 14, 22, 25. North Carolina, 19, 30, North Dakota, 4, 5, 6, 20, 26. Ohio, 15; 21. Oklahoma, 7. Oregon, 5, 28. Pennsylvania, 8, 16, 20, 21, 25, 27. Rhode Island, 13, 14. South Dakota, 14, 17, 26, 27, 31. Texas, 4. Utah, 9, 10, 11, 29. Vermont, 13. Virginia, 9. West Virginia, 2, 27. Wisconsin, 7, 16, 17, 25, 26. Wyoming, 17, 19, 31.

Sleet was not reported during July.

INLAND NAVIGATION.

The *extreme and average stages of water* in the rivers during the current month are given in Table VII, from which it will be seen that the only river that attained the danger line during the month was the Red River, which on the 29th and 30th was about 1 foot above the danger line at Shreveport, La. Among other rather near approaches to the danger line were the Willamette at Portland, Oreg., on the 8th and 9th, and the Big Sandy at Louisa, Ky., on the 26th.

SUNSHINE AND CLOUDINESS.

The sunshine is now recorded automatically at 15 regular stations of the Weather Bureau by its photographic, and at 28 by its thermal effects. The photographic record sheets show the apparent solar time, but the thermometric sheets show seventy-fifth meridian time. For convenience the results are all given in Table XI for each hour of mean local time. The cloudiness is determined by numerous personal observations at all stations during the daytime, and is given in the column of "average cloudiness" in Table I; its complement or clear sky is given in the last column of Table XI.

COMPARISON OF SUNSHINE AND CLEAR SKY.

The sunshine registers give the *duration* of direct sunshine whence the percentage of possible sunshine is derived; the observer's personal estimates give the percentage of *area* of clear sky. It should not be assumed that these numbers should agree, and for comparative purposes they have been brought together, side by side, in the following table, from which it appears that, in general, the instrumental record of percentages of duration of sunshine is almost always larger than the observer's personal estimates of percentages of area of clear sky; the average excess for July, 1895, is 10 per cent for photographic records, and 15 per cent for thermometric records. The details are shown in the following table:

Difference between instrumental and personal observations of sunshine for July, 1895.

Photographic stations.	Instrumental.	Personal.	Difference.	Thermometric stations.	Instrumental.	Personal.	Difference.
Galveston, Tex.	85	80	5	Chicago, Ill.	82	63	19
Salt Lake City, Utah*	76	54	22	Cincinnati, Ohio†	80	54	26
Portland, Oreg. *	71	56	15	Salt Lake City, Utah†	75	54	21
Helena, Mont.	69	67	2	Portland, Me	74	35	39
Cleveland, Ohio	68	50	18	Key West, Fla	73	51	22
Santa Fe, N. Mex.	68	48	20	Philadelphia, Pa	73	49	24
San Diego, Cal.	67	69	— 2	Des Moines, Iowa	71	57	14
Dodge City, Kans.	63	58	5	Vicksburg, Miss	71	68	3
Savannah, Ga	62	52	10	Washington, D. C.	71	55	16
Bismarck, N. Dak	61	56	5	Atlanta, Ga.	70	45	25
Denver, Colo	59	49	10	Marquette, Mich	70	45	25
Spokane, Wash.	59	50	9	Baltimore, Md.	69	57	12
Memphis, Tenn.†	56	40	16	Portland, Oreg. *	68	56	12
Kansas City, Mo.*	54	42	12	Rochester, N. Y.	67	49	18
Eastport, Me	50	42	8	Columbus, Ohio	66	46	20
				Detroit, Mich.	63	50	13
				New Haven, Conn.	62	57	5
				New Orleans, La	62	62	0
				Louisville, Ky	61	46	19
				St. Louis, Mo	61	42	15
				Seattle, Wash	60	60	0
				Wilmington, N. C.	60	60	0
				New York, N. Y.	59	46	13
				Little Rock, Ark	58	44	14
				Norfolk, Va	57	49	8
				Boston, Mass	55	38	17
				Buffalo, N. Y.	52	32	20
				San Francisco, Cal.	49	51	— 2

* Records kept by both methods.
† All values for 10 days, except hourly percentages from 5 a. m. to noon, inclusive.

WIND.

The *prevailing winds* for July, 1895, viz, those that were recorded most frequently at Weather Bureau stations, are shown in Table I.

The *resultant winds*, as deduced from the personal observations made at 8 a. m. and 8 p. m., are given in Table IX. These latter resultants are also shown graphically on Chart II, in connection with the isobars based on the same system of simultaneous observation; the small figure attached to each arrow shows the number of hours that this resultant prevailed, on the assumption that each of the morning and evening observations represents one hour's duration of a wind of average velocity; these figures (or the ratio between them and the total number of observations in this month) indicate the extent to which winds from different directions counterbalanced each other.

HIGH WINDS.

Maximum wind velocities of 50 miles or more per hour were reported at regular stations of the Weather Bureau as follows (maximum velocities are averages for five minutes; extreme velocities are gusts of shorter duration, and are not given in this table):

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
		Miles				Miles	
Bismarck, N. Dak	4	52	s.	Little Rock, Ark	7	60	nw.
Chicago, Ill	18	50	w.	Memphis, Tenn	8	54	w.
Davenport, Iowa	7	60	w.	Sandusky, Ohio	19	50	nw.
Havre, Mont	15	50	nw.	Winnemucca, Nev	31	60	sw.
Huron, S. Dak	14	56	w.				

ATMOSPHERIC ELECTRICITY.

The statistics relative to auroras and thunderstorms are given in Table X, which shows the number of stations from which meteorological reports were received, and the number of such stations reporting thunderstorms (T) and auroras (A) in each State and on each day of the month.

The dates on which reports of thunderstorms for the whole country were most numerous were: 20th, 259; 21st, 244; and 27th, 205.

Thunderstorm reports were most numerous in Missouri, 301; Florida, 266; Illinois, 251; and Colorado, 220. Thunderstorm days were most frequent in Kentucky and Florida, 31; Colorado, Mississippi, and Missouri, 28; Alabama and North Carolina, 25.

Severe thunderstorms are especially mentioned under "Local Storms."

Auroras.—The evenings on which bright moonlight must have interfered with observations of faint auroras are assumed to be the four preceding and following the date of full moon, viz, from the 2d to the 10th, inclusive. On the remaining twenty-two days of this month 57 reports were received, or an average of about 3 per day. The dates on which the reported number especially exceeded this average were: 12th, 6; 22d, 7.

Auroras were not reported anywhere by a large percentage of observers, but the largest percentages were: North Dakota, 22 per cent; Montana, 12.

Auroras were most frequent in: Ohio, on nine days; Massachusetts, seven; North Dakota, six.

CANADIAN THUNDERSTORMS AND AURORAS.

The dates of thunderstorms were as follows: Sydney, 11, 12; Quebec, 21, 28; Saugeen, 12; Winnepeg, 5, 13, 19, 26, 29; Minnedosa, 2, 22.

The dates of auroras were as follows: Grindstone, 19; Halifax, 16; Yarmouth, 26; Saint Andrews, 25, 26; Charlottetown, 23; Father Point, 18, 22; Quebec, 13, 22; Rockliffe, 7, 8, 12; Toronto, 7, 12, 16, 21, 25; White River, 7; Port Stanley, 12, 15, 19–21; Parry Sound, 15, 25; Port Arthur, 7, 11; Winnepeg, 5, 25; Minnedosa, 5, 6, 26; Qu'Appelle, 4, 6, 9, 10, 25, 26, 27; Medicine Hat, 2–5, 15, 19, 30, 31; Swift Current, 1, 4, 15, 23, 25; Calgary, 8; Prince, Albert, 3, 4, 5, 26; Battleford, 3, 4, 5, 14, 26, 31.

METEOROLOGY AND MAGNETISM.

For general remarks relative to this subject see page 7 of the REVIEW for January, 1895.

The comparison of the air temperature with magnetic horizontal force is shown in detail on Chart V, and the special features of the July curves are as follows:

There are no corrections for amplitude or slope. For reduction to a zero base line the temperature variations are corrected by +5 and the magnetic force by +1. The pressures are plotted as for April and the succeeding months.

STATE WEATHER SERVICES.

These extracts in regard to general weather conditions are taken from the monthly reports of the State weather services.

Snowfall and rain are expressed in inches.

Alabama.—The mean temperature was 79.6°, or 4.3° less than normal. The highest temperature, 102°, occurred at Goodwater on the 17th, and the lowest, 56°, at Oneonta on the 26th. The average total precipitation was 4.94; the greatest amount, 9.23, was reported at Citronelle, and the least, 1.65, at Newbern. Thunderstorms were quite frequent.

Alaska.—Not yet organized.

Arizona.—Not received.

Arkansas.—The temperature was generally below the average, except during the period from the 15th to the 20th, when it averaged 2° above. The period of greatest deficiency occurred from the 9th to the 12th, when it averaged about 8° below. The lowest temperatures occurred generally on the 9th and 10th. The average total precipitation was 7.29, or 3.26 greater than usual, and is the greatest average rainfall for thirteen years. The largest total rainfall. 16.74, was reported at Winslow, and the smallest, 1.34, at Elon. It was heaviest over the west and northwest parts of the States and lightest in the east and southeast. Thunderstorms were reported on nearly every day. On the 7th storms were reported at the greatest number of stations. Hail was reported at Keesees Ferry on the 7th and at Camden on the 20th.

California.—The mean temperature was 72.8°, about 0.3° below normal. The highest temperature, 121°, was reported at Volcano Springs on the 16th, and the lowest, 29°, at Boca on the 4th. The average total precipitation was but 0.04 greater than the normal. Frost was reported at Bodie on the 1st, 4th, 6th, 12th, 26th, 29th, and 30th.

Colorado.—The month was characterized by many cool and rainy days, and was 3.5° cooler than the average. The deficiency of heat was general, many stations reporting the mean temperature from 1° to 3° lower than previously recorded. The average total precipitation was 1.55 above the normal. A slight deficiency occurred over Logan County and over limited areas in Washington, Summit, and Eagle counties; but in other sections decidedly more than the usual amount of rain fell, the excess being greatest over the southeastern counties, where from 2.00 to 5.00 more than the normal was recorded.

Connecticut.—(See *New England.*)

Delaware.—(See *Maryland.*)

District of Columbia.—(See *Maryland.*)

Florida.—The mean temperature was 81.1°, or 1.5° below the average. The highest temperature, 100°, was reported at Earnestville, on the 1st, and the lowest, 61°, at Green Cove Springs and Manatee, on the 10th. The precipitation, 7.16, was in excess of the normal by only 0.32. Decidedly the heaviest rains occurred over the northern and northwestern districts, and the least, in the southern sections.

Georgia.—The average temperature was about 2° below the normal. Although the average rainfall for the month varied but little from the normal the total amount received at stations in the same part of the State and in some cases in the same county was unusually variable. The greatest rainfall appears to have been in the extreme southwestern part of the State and over districts bordering on the coast.

Idaho.—The month opened with clear and unusually warm weather in all sections of the State. Showers were general on the 3d, 4th, and 5th, followed by a long period of dry weather, broken in only a few places by thunderstorms, accompanied by showers, which were poorly distributed and too light to be of benefit to crops. Light rains were reported over a large portion of the State from the 28th to 31st. Frosts occurred in portions of the southern section on the 6th, 7th, 8th, 10th, and 20th; the first two dates were the coolest days of the month; the warmest, the 23d and 24th.

Illinois.—The month was marked by many sudden and severe storms and heavy falls of rain over limited areas. The 7th, 14th, 17th to 20th, 26–27th, were all marked by exceedingly high gales and heavy thunderstorms with tornado tendencies. Much damage was done to property and growing crops, especially in the northern half of the State, and several lives were lost.

Indiana.—The daily mean temperature was below the normal the greater part of the month in all portions, the deficiency for the State being 1°. Excess in temperature existed in the northern, central, and southern portions; the greatest excess was in the latter section. The average precipitation for the State was 0.18 above normal.

Indian Territory.—(See *Oklahoma.*)

Iowa.—The month was slightly cooler than the average, with less than the usual precipitation. The highest temperature was 104°, at Neola, Belle Plaine, and Sidney, on the 16th; and the lowest, 35°, at Logan, on the 9th. The average precipitation was 3.40, or 0.90 below normal. The distribution was remarkably unequal. The greatest amount was 10.10, at Iowa City, and the least, 0.45, at Neola. In some sections there were excessive downpours on single days.

Kansas.—The mean temperature was 74.9°, or 2.8° below the normal. The mean did not reach normal at any station. The greatest deficiency was 6.7° in the southern part of Trego County. The average rainfall was 5.58, or an excess of 1.92. The rainfall was generally heavy in the western division, the heaviest, 7.27, occurring in Morton, and the least, 0.31, in Stafford. The largest rainfall in the State was 12.31, at Morton. Hail was reported on the 7th, 19th, 28th, and 29th; and thunderstorms on 16 dates.

Kentucky.—The month was slightly cooler than normal, and over the greater portion of the State there was an excess of rainfall which, with its accompanying clouds, reduced the amount of sunshine considerably below the average. The general character of the weather was exceptionally favorable to vegetation of all kinds, except in certain western counties, where heavy rains had a rather baneful effect. The average amount of rainfall, 5.75, exceeded that for any July since the State Weather Service was organized. The distribution of rain, however, was not uniform, the western, central, and mountain districts receiving an excess, while the counties north of Fayette and Clark received less than the average.

Louisiana.—The temperature averaged normal in the northern half of the State and was less than a degree warmer than usual over the southern half, the average for the State was but 0.4° above the normal. In the northern portion the nights averaged a degree warmer than usual and the days a degree cooler; in the southern portion both the days and nights were slightly warmer than usual. The rainfall for the State averaged 6.80, an excess of a third of an inch; it was slightly above the normal in both the north and south sections, but more noticeably so in the latter. Thunderstorms were reported from one or more stations on every day of the month.

Maine.—(See *New England.*)

Maryland.—The mean temperature was 71.4°, or 4.4° below the normal; the highest temperature, 102°, reported at Western Port on the 20th, and the lowest, 32°, at Deer Park on the 31st. The average rainfall was 3.29, or 0.96 below normal. The largest amount, 7.68, was recorded at Cherryfields, and the smallest, 0.81, at St. Charles College. Thunderstorms were reported at one or more stations on the 4th, 5th, 8th, 9th, 15th, 16th, 17th, 19th, 20th. 21st, 22d, 23d, 25th, 27th, 28th, and 31st.

Massachusetts.—(See *New England.*)

Michigan.—The mean temperature for the State was 67.8°, or 2.6° below the normal; for the Upper Peninsula it was 2.2°; northern counties, 3.9°; central counties, 3.0°, and southern counties, 1.9° below. The temperature was deficient on twenty-one days, in excess on eight days, and normal on two days. At a few scattered localities in the interior portion of the Lower Peninsula frosts were reported on the 31st, but very little damage was done. The average precipitation was 1.81 below normal. It was below the usual amount in the Upper Peninsula, 2.05; northern counties, 2.15; central counties, 1.76, and southern counties, 1.55. Over the central and southern counties there was practically no precipitation during the first fourteen days, while the rain that fell during the remainder of the month was so light and poorly distributed and came to such a parched soil that it was insufficient to supply the needs of vegetation. Over the Upper Peninsula and northern counties of the Lower Peninsula the rainfall was somewhat better distributed throughout the month; while the average was considerably less than that over the central and southern counties, it seems to have been more beneficial to vegetation, owing to its more even distribution.

Minnesota.—The month averaged 2.7° cooler than usual. The deficiency was quite uniform in all sections. There was but one hot spell, which occurred on the 4th, 5th, and 6th. On the 8th, 9th, and 10th a marked cool spell prevailed, when nearly all minimum temperatures for the month were recorded, and in a few exposed places light frosts occurred. Other cool spells occurred between the 17th and 22d and on the last two days of the month. This latter spell was also attended with light frosts that did no harm. The rainfall averaged 0.40 in excess of the usual quantity. The counties contiguous to the Minnesota River had a slight deficiency; elsewhere the moisture was ample.

Mississippi.—The month was cooler than usual by half a degree, with a mean temperature of 80.8°. The highest temperature, 105°, was reported at Columbus on the 14th, and the lowest, 58°, at French Camp on the 26th. The average precipitation was 4.66, or an excess of 0.82. An excess fell over the southern and north-central districts, with nearly a normal fall elsewhere. The largest amount, 12.29, was recorded at Magnolia, and the smallest, 1.69, at Columbus. Reports from 10 voluntary stations show thunderstorms to have occurred at one or more stations on every day except the 26th. Hail was reported at Woodville on the 18th.

Missouri.—The month averaged cooler than usual in all sections; the mean for the State was 74.3°, or 2.8° below the normal. In the northwest and southwest sections the average daily deficiency amounted to 3.5°, and in the remaining sections it ranged from 2.2° to 2.5°. Except at a few stations in the west-central and northwest portions of the State the precipitation was decidedly in excess of the normal. In the northeast section the excess amounted to 4.21; in the southeast section 2.91; in the central section, 2.77, and in the northwest section, 1.49. Over the greater portion of the State the total rainfall exceeded 6.00, and over considerable areas in the northeast, central, west-central, and southern portions it exceeded 8.00. The average total amount was 6.89, being 2.98 above the normal. Hail was reported at one or more stations on the 14th, 18th, 28th, and 29th, and thunderstorms on the 4th, 5th, 7th, 8th, 14th, 17th to 21st, and 26th to 29th.

Montana.—The temperature was about 4° below the normal, the average being 65°; the highest daily was 108°, at Musselshell on the 3d, and the lowest 31°, at Fort Logan on the 10th and 20th. Frost was reported at Havre on the 15th and at Fort Logan on the 10th. The precipitation was about 0.54 below the normal, the average for the State being 1.08. The largest amount was 2.56, at Fort Benton, and the smallest, 0.08, at Musselshell.

Nebraska.—The average temperature was normal; the rainfall was quite deficient over the State, as a whole, being heaviest along the southern border, but very light over the northern half. The highest temperature was 110°, at North Platte on the 10th, and the lowest, 36°, at Creighton on the 9th. The average precipitation was 1.73, or 1.78 below the normal. Rainfall was heaviest in the southwest section, where it averaged 3.61, and lightest in the northwest section, where the average was but 0.94; the largest amount, 5.80, was recorded at Haigler, and the smallest, 0.00, at Albion.

Nevada.—The mean temperature was 70.2°, 1° below the normal. The greatest deficiency was 6°, at Halleck, and the least 1°, at Stofiel and Palmetto. The greatest excess was 4°, at Downeyville and Sunnyside; the least, 1°, at Candelaria and Tybo. The highest temperature, 112°, was registered at St. Thomas on the 10th and several other days; the lowest, 28°, occurred at Stofiel on the 18th. Probably the most remarkable temperature record was that of St. Thomas, with a monthly mean maximum of 104.2°. The average precipitation, 0.05, was 0.43 less than normal. The deficiency was general all over the State, with the exception of Winnemucca, which reported an excess of 0.10. Light frosts were reported at Cranes Ranch on the 6th, 17th, and 26th, and at Wells on the 5th, 6th, and 17th.

New England.—The average temperature was 67.1°, or 2.5° below the normal. The highest temperature was 98°, at Somerset, Mass., on the 21st, and the lowest 34°, at West Milan, N. H., on the 29th. There were light frosts at West Milan, N. H., on the 11th and 29th, and at Royalston, Mass., on the 11th. The average precipitation was 3.96, or 0.29 above the normal. There was a deficiency in rainfall in the northern and northwestern half of New England and an excess in the southeast. The number of thunderstorms in the north was much less than is usual for the month. Hail was reported on the 6th, 12th, 13th, 14th, 25th, 27th, and 30th. That of the 13th is reported to have done considerable damage in Connecticut.

New Hampshire.—(See *New England.*)

New Jersey.—The mean temperature was 70.9°, or 3.6° below the normal. The maximum temperature was 99°, at Vineland, on the 21st, and the minimum, 41°, at Charlotteburg, on the 12th and 15th. The average precipitation, 4.26, was 0.06 below the normal. The largest amount, 7.73, was recorded at Toms River, and the smallest, 1.53, at Bridgeton. Thunderstorms were quite frequent. Hail was reported on the 13th, 16th, and 27th.

New Mexico.—The month was on the average cooler than usual, and remarkable for very heavy rainfall in some localities, where it averaged considerably above the normal. The warmest days were generally the 6th to 8th, 16th, 17th, and 26th, and the coolest, the 11th to 13th inclusive. The average precipitation was 4.39; the largest amount was 11.51, at Albert, and the least, 0.54, at Aztec. Thunderstorms were of almost daily occurrence. Hail was reported by a few stations. A heavy shower on the 21st at Silver City caused damage to buildings

and other property. At Socorro, on the 30th, a severe shower caused a flood, resulting in heavy damage to property and the loss of nine lives.

New York.—The month was cooler than usual, deficiencies in temperature occurring at all stations. The average temperature was 3.2° below the normal. The highest temperature was 98°, at South Kortright on the 20th, and the lowest, 36°, also at South Kortright on the 12th. Light frosts occurred in some highland valleys of the western and central sections on the 1st, 10th, and 11th. The precipitation was unevenly distributed over the State, but conformed in a general way to the normal. The average precipitation was 3.12. The heaviest general rainfall, exceeding 4.00, occurred over the coast region and in restricted portions of the northern highlands and the east-central counties; the least was less than 2.00, in the extreme west, and south of the central lakes. There were no severe general storms, but destructive wind and hail were reported from southeastern stations on the 12th and 13th.

North Carolina.—The month was cooler than the average, the mean temperature being 2.6° below the normal. The highest temperature was 99° at several stations from the 18th to 22d; the lowest was 43° at Linville on the 3d and 6th. The amount of rainfall was nearly normal, being deficient only 0.10. The greatest deficiency occurred in the west. The largest amount of rainfall, 9.03, was reported at Southport; the least, 2.32, at Asheville. Moderate thunderstorms occurred on all except 5 days during the month.

North Dakota.—The month was the coolest since the establishment of the State service in 1891, the mean temperature was 66°, or 5.5° cooler than July, 1894. The maximum temperature was 102° at Forman on the 5th, and the minimum, 29°, at Dickinson on the 29th. Heavy showers fell in all parts of the State from the 4th to 8th, after which there was an interval of light scattered showers until the 17th, when medium heavy ones fell in nearly all sections until the 23d, after which there were only light ones at widely separated places. There was a very severe storm at Grafton on the 14th, doing considerable damage and caused the death of a child. The average precipitation was 4.67, or about normal. The largest rainfall was 6.36, at Power, and the smallest, 0.95, at Ashley.

Ohio.—The mean temperature of the southern section was 73.4°; middle section, 70.9°; northern section, 70.1°; and of the State, 71.6°; these are below the averages for sections and State, 0.9°, 1.5°, 1.6°, and 1.2°, respectively. The maximum was 106° at Thurman on the 20th, and the minimum, 34°, at Auburn on the 9th, which is lower than any previous record. The average precipitation was 2.00; that for the southern section, 1.90; middle section. 2.12; and the northern section, 1.97; being below the normal for the State and sections by 1.12, 1.19, 1.16, and 1.03, respectively. Light frosts occurred in low-lying districts on the 4th and 10th; no damage.

Oklahoma.—The mean temperature was 79.2°. or 0.5° below the normal. The maximum temperature was 106° at Ponca on the 29th, and the minimum, 50°, at Pond Creek on the 7th. The average precipitation was 5.58, or 1.76 above the normal. The greatest amount, 11.75, occurred at Kemp, and the least, 1.55, at Ponca.

Oregon.—Both heat and moisture were about normal, the temperature slightly below and the precipitation a trifle above. The greatest departure from the normal temperature was in the eastern section, where it amounted to 2.3°. In the Willamette Valley and the southern portion the temperature was normal. The maximum was 107° at Pendleton on the 23d, and the minimum, 21°, at Burns on the 6th. There was more rain than usual in the Willamette Valley and the coast district, while in the southern and eastern portions there was less, the excess in the coast district amounting to nearly half an inch. The average rainfall was 0.55, or 0.09 above the normal.

Pennsylvania.—The average temperature, 69.1, was 1.9° below the normal for the past seven years. The highest temperature was 102° at (Aqueduct) Logania on the 20th, and the lowest, 34°, at Shinglehouse on the 2d. The average precipitation was 3.24, or 0.97 less than the usual amount. The largest amount was 6.18 at Confluence, and the smallest, 1.16, at Harrisburg. Thunderstorms were frequent. Hail was reported on the 5th, 16th, 20th, 21st, and 27th, and frosts on the 4th, 10th, 11th, 13th, 14th, 30th, and 31st.

Rhode Island.—(See *New England.*)

South Carolina.—The month was much cooler than usual during the first seven days, and about normal or warmer during the remainder of the month. The mean temperature, 79.5°, averaged about normal. The maximum, 102°, was reported at Gillisonville on the 17th, and the minimum, 54°, at Spartanburg on the 10th. The rainfall averaged 69 per cent of the usual amount and was not well distributed. The average was 4.17, or 1.85 below the normal. The greatest amount, 8.50, was recorded at Georgetown, and the least, 0.73, at Cheraw. Thunderstorms were quite frequent.

South Dakota.—The mean temperature, 70.8°, was 0.7° below the normal. The highest temperature was 111° at Cherry Creek on the 4th, and the lowest, 27°, at Forest City on the 10th. The average precipitation was 1.60, or 1.33 below the normal. The largest amount, 3.79, was recorded at Brookings, and the smallest, 0.39, at Rapid City. Thunderstorms were frequent. Some stock was killed by lightning on the 17th in Deuell County and on the 20th in Jerauld County. Hail was reported on the 9th, 14th, 18th, 26th, 28th, 29th, and 31st. The hail in a portion of Day County on the 26th was said to be the size of a hen egg.

Tennessee.—The month presented some quite abnormal features, the principal of which were the large monthly rainfall and the low temperatures which prevailed during the first and third decades. The average temperature was 75.9°, or slightly below the normal. The 18th and 26th were the only days on which no precipitation was recorded at any of the stations. The average amount was 6.48, or 2.19 more than normal.

Texas.—The mean temperature was 0.4° below the normal. It was below the normal everywhere except over the southwest portion and extreme western portion of the coast district, where there was an excess ranging from 0.7 to 2.3°. The average precipitation was 0.42 above the normal. It was above the normal over north, central, west, and east Texas, and the eastern portion of the coast district, while over other portions of the State there was a general deficiency ranging from 0.88 to 2.14.

Utah.—The mean temperature was 70°, or about 3° below the normal. The maximum was 110° at Fillmore on the 10th, and the minimum, 33°, at Loa on the 11th. The average precipitation was 0.57; greatest total amount was 2.29 at Grover, and the least, a trace, at Deseret. Thunderstorms were frequent. Hail was reported on the 9th, 10th, 11th, 17th, and 29th. Light frost was reported at Heber on the 1st, 6th, 23d, and 24th, and at Grover on the 12th and 13th.

Vermont.—(See *New England.*)

Virginia.—The month opened with moderate temperatures generally in all sections, but a slow rise prevailed until the 9th, when the temperature declined; it remained moderate until the 14th, when it began to rise and a heated period of ten days followed. From the 24th to the end of the month the temperature remained about normal. The total precipitation was slightly below the normal. It was heaviest in the Blue Ridge counties, and, with few exceptions, lightest in the tidewater counties. Fairly heavy showers occurred on the 1st-2d, 7th, 16th, 23d, 25th, and 31st, and light showers 9th to 14th, 19th to 21st, and 27th to 30th.

Washington.—The chief characteristics during the month were a very uniform temperature slightly below the normal and a rainfall also considerably below the average, with hot dry winds in the eastern section.

West Virginia.—The mean temperature was about 3° below the normal. The month was characterized by extremes of heat and cold. From the 1st until the 16th the temperature was below normal every day but two, the 7th and 8th; from the 18th to the 22d a period or intense heat occurred, followed by cool weather until the close of the month. Light frosts were reported on the 31st from some elevated districts. The rainfall was very nearly normal, but was quite unevenly distributed, the southern section receiving more than the average and the northern section less. Hail was reported at White Sulphur Springs on the 2d and at another station on the 27th.

Wisconsin.—The mean temperature was 68.7°, only 0.2° above the normal. The highest temperature was 100° at Pepin on the 6th, Black River on the 5th and 6th, and Prairie du Chien on the 7th, and the lowest, 33°, at City Point on the 31st. Frosts occurred in the northern portion on the 7th, 8th, 9th, and 31st. The average rainfall was 2.47, or 0.42 below the normal. The extreme southern portion of the State received little or no rain, while over the northern portion the amount received was fully up to the average and well distributed.

Wyoming.—The mean temperature was 64°, being decidedly below the normal. The highest temperature was 101° at Wheatland on the 27th, and the lowest, 28°, at Wise on the 7th. The average amount of precipitation was 2.71, or slightly in excess of the normal.

STUDIES BY FORECAST OFFICIALS.

HIGH AREAS OF THE NORTH PACIFIC COAST IN SEPTEMBER, OCTOBER, AND NOVEMBER.

(By Prof. E. B. GARRIOTT; dated September 13, 1893.)

The high areas of the North Pacific Coast in September, October, and November are associated with low areas which occupy the north-central districts of the United States. Low areas of this type usually move eastward over, or north of the Great Lakes, and are seldom attended by precipitation south of the Ohio River and the more northern of the Middle Atlantic States (see Charts VI, VII, and VIII). With the eastward movement of a low area from the north-central districts the high area on the North Pacific Coast moves east-

southeastward attended by marked changes in temperature from the middle-eastern and northeastern slopes of the Rocky Mountains over the Missouri and upper Mississippi valleys and Lake Region. When a high area appears on the North Pacific Coast, and the low area is located over or east of the Great Lakes, a secondary disturbance generally develops over the central valleys. If a high area appears on the North Pacific Coast and a low area is not shown in the Northwest, one will probably develop within twelve hours.

The Pacific Coast high areas of September advance to the upper Mississippi Valley in about seventy-two hours at an average velocity of about 21 statute miles per hour. During that period the low areas which appear in the Northwest pass eastward over the northern Lakes and reach Newfoundland traveling at an average velocity of 28 miles per hour. In September, when the pressure rises above 30.20 on the North Pacific Coast and falls below 29.80 between Lake Superior and the upper Missouri Valley, rain may be expected within an area extended from the western Lakes over the extreme upper Mississippi Valley in twenty-four hours; over the middle, southern, and eastern Lake Region in thirty-six hours; and over New York, northeastern Pennsylvania, northern New Jersey, and New England in forty-eight hours. A temperature fall of 10° or more will probably be experienced on the northeast slope of the Rocky Mountains and over the western half of the Dakotas in twenty-four hours; from the eastern half of the Dakotas over the extreme upper Mississippi Valley and western Lake Superior in thirty-six hours; and over the Lake Region in forty-eight hours. Occasionally a September high area will appear on the North Pacific Coast showing pressure above 30.20, with a rather weak low area over or north of the upper Missouri Valley. The high area will remain nearly stationary for a period of one, two, or three days, with increasing pressure, and the low area will gradually deepen. When the low has gathered sufficient strength to overcome the obstruction (generally a high area to the eastward) which has prevented its eastward advance the eastward movements of the high and low areas begin. In such cases the low area generally increases in intensity as it passes over the Great Lakes. Again, a deep low area will appear in the Northwest and remain nearly stationary for several days, while the pressure gradually increases over the North Pacific Coast Region. When the pressure on the North Pacific Coast reaches 30.20 an eastward movement of the high and low areas may be expected. In cases where the pressure does not rise to 30.20 on the North Pacific Coast the low area in the Northwest will dissipate.

In October the movements of the high and low areas are somewhat more rapid than for the preceding month. The high areas from the North Pacific Coast advance to the middle Ohio Valley in seventy-two hours and the low areas traverse a path extending from the one hundredth meridian to a point southeast of Newfoundland in the same period of time. In October, when the pressure rises to 30.20 or above on the North Pacific Coast and falls to or below 28.80 in the Northwest, rain or snow may be expected over the Red River of the North Valley, over the extreme upper Mississippi Valley, and the northwestern Lake Region in twenty-four hours; in the Lake Region and upper Mississippi and northern Ohio valleys in thirty-six hours, and in the Middle Atlantic and New England States in forty-eight hours. The temperature will probably fall 10° or more in the middle and upper Missouri valleys in twenty-four hours; over the Red River of the North Valley, over the extreme upper Mississippi Valley and the western Lake Region in thirty-six hours, and over the central and eastern Lake Region and the interior of Pennsylvania, New York, and New England in forty-eight hours.

In November there is a marked change in the character of the high areas that appear over the northwestern part of the United States. In that month a majority of the high areas advance from the British Northwest Territory and enter the region of observation on the northeast slope of the Rocky Mountains. The high areas that advance from the North Pacific Coast often settle southeastward and become a part of the permanent high that commences to build up over the middle plateau region with the advent of the colder months. Many of the high areas that appear over the British Northwest Territory show pressure above 30.50 and sometimes 30.70 and 30.80. High areas of this class often extend westward over the North Pacific Coast. This class of high areas is not considered in the present paper.

In November, when a high area appears on the North Pacific Coast with a low area east of the ninetieth meridian, rain or snow will probably fall in New England within twenty-four hours. When high areas advance from the British Northwest Territory the preceding low areas are seldom attended by precipitation west of the Great Lakes. When the pressure on the North Pacific Coast rises to or above 30.30 and falls to or below 29.80 in the Northwest, precipitation may be expected in the middle and upper Missouri and extreme upper Mississippi valleys and the upper Lake Region in twenty-four hours; in the lower Lake Region, New York, and northern Pennsylvania in thirty-six hours, and from the eastern Lakes over the Middle Atlantic and New England States in forty-eight hours. The temperature will probably fall 10° or more over the Missouri Valley, and the extreme upper Mississippi Valley, in twenty-four hours; in the upper Lake Region and the upper Mississippi and lower Ohio valleys in thirty-six hours, and from the lower Lake Region over the interior of the Middle Atlantic and New England States in forty-eight hours.

[NOTE.—Three charts, Nos. VI, VII, and VIII, accompanied the preceding article and are reproduced herewith.]

SPECIAL CONTRIBUTIONS.

THE MARVIN SEISMOGRAPH.

By Prof. C. F. MARVIN, U. S. Weather Bureau.

A seismograph is an instrument that produces an automatic record of tremblings, oscillations, vibrations, or quakings of the crust of the earth. In the most complete seismograph the precise time at which the event takes place and the exact nature and extent of the motions of the earth particle, that is, the portion of the surface supporting the instrument, are all faithfully recorded, but the name is also frequently and properly applied to instruments that record perhaps no more than one of the elements mentioned above, or even simply the time of occurrence of the tremors.

The rumbling of a cart or wagon along a roughly paved roadway near at hand, the passage of a train at a distance, or a remote and violent explosion, all produce tremors in the earth that differ from actual earthquakes, properly so-called, in intensity and violence. With little difficulty instruments can be constructed that will faithfully record even the feeblest of these tremblings.

Small seismic disturbances, or earthquakes, are frequent even in the eastern portion of the United States, and geologists are interested in the systematic observation of such phenomena. The very considerable cost and the great delicacy of instruments for automatically registering all the fea-

tures of earth tremors, together with the technical skill required for their management, and the prolonged periods throughout which they must be maintained in constant readiness for the infrequent disturbances, constitute a series of obstacles that have quite prevented the installation and maintenance of many such instruments. Whenever a large seismic disturbance does occur, however, the need of accurate records of the phenomena and the complete lack of instrumental measurements are strongly felt on every side.

This was the case in the month of November, 1892, at which time violent explosions of dynamite and other material were made near the city of Washington, with the object of artificially producing rain, if possible. The complete lack at the Weather Bureau of any record of possible earth tremors caused by those explosions led the Chief of the Bureau to authorize the installation of the seismograph described below.

Before taking up this description, however, it is desired to analyze somewhat superficially, perhaps, earthquake action, and show the value and use of earthquake observations.

Our experience teaches us that seismic actions generally, if not always, begin with quite imperceptible tremors, which increase rapidly in intensity, and, after passing the period of greatest violence, die out as imperceptible tremors.

Any instrument designed to be influenced by disturbances of this character will always have a certain limit of sensitiveness and will not be affected until the tremors attain some intensity. Tremors of very feeble intensity may be registered by photographic means, whereas, disturbances of relatively greater intensity are necessary to set in action those instruments which register by mechanical appliances, such as the marking of a pen on a sheet of paper.

Probably the most sensitive form of seismograph capable of recording simply the time of occurrence of an earthquake would consist of devices by which a fixed beam of light is made to produce a trace on a photographic plate moved by clockwork. If the light first undergoes reflection from a surface of clean mercury contained in a vessel firmly imbedded in the earth, then the slightest earth tremors would break up the mercury surface into minute wavelets, and so alter the direction of the reflected ray of light as to make a break in the continuity of the photographic trace. The time of the beginning of the gap in the trace would mark the beginning of the earthquake, and the length of the gap would mark the duration of the disturbance—at least approximately, for, in considering such a record, we need to bear in mind that the mercurial surface once disturbed would continue in motion for several seconds after the actual earth tremors had ceased. Some allowance for this could probably be made.

The next point to consider is the value and significance of a precise record that shows only the time of occurrence of an earthquake.

A single record at one point only of the time of beginning of a disturbance does not possess much value, but a number of unformly accurate records over a large region may be made to give indications of the locality in which the earthquake had its origin. The rate of progression of the earth wave across the country and through rocks and soils of different characters may also be determined. To set forth more clearly how this is done suppose, for example, that the greater part of the stations of the Weather Bureau, distributed as they are, far and wide over the United States, were each equipped with a seismograph from which could be determined the exact time of occurrence and duration of an earthquake at the station in question. Suppose, for example, the origin of some earthquake was in the vicinity of Lake Michigan. It is plain that the seismographs all around this locality and near to it would record the time earliest, while those farther and farther away would show the time to have been later and later. By charting the observations thus made and drawing isochronic lines not only would the general origin of the disturbance and its speed of travel be indicated but much more, that is now perhaps little imagined, could be learned in regard to earthquakes. In studying such records we would need, among many other refined details, to consider that at the most distant points the record would have reference to the most violent portion of the real disturbance, for the reason that the feebler portions that were yet powerful enough to set off the seismographs at moderate distances would not, perhaps, reach the more remote regions. If from the records we could form also some idea of the duration of the shock, or better, its intensity at different instants, their value would be much enhanced.

With these brief general remarks we will pass to a description of the seismograph which has been maintained in continuous operation at the Weather Bureau since the winter of 1892–3. Recognizing that a single record in a vast region could not be of great utility no special effort was made to secure in this particular seismograph either a very high degree of sensitiveness or the greatest precision of time measurement.

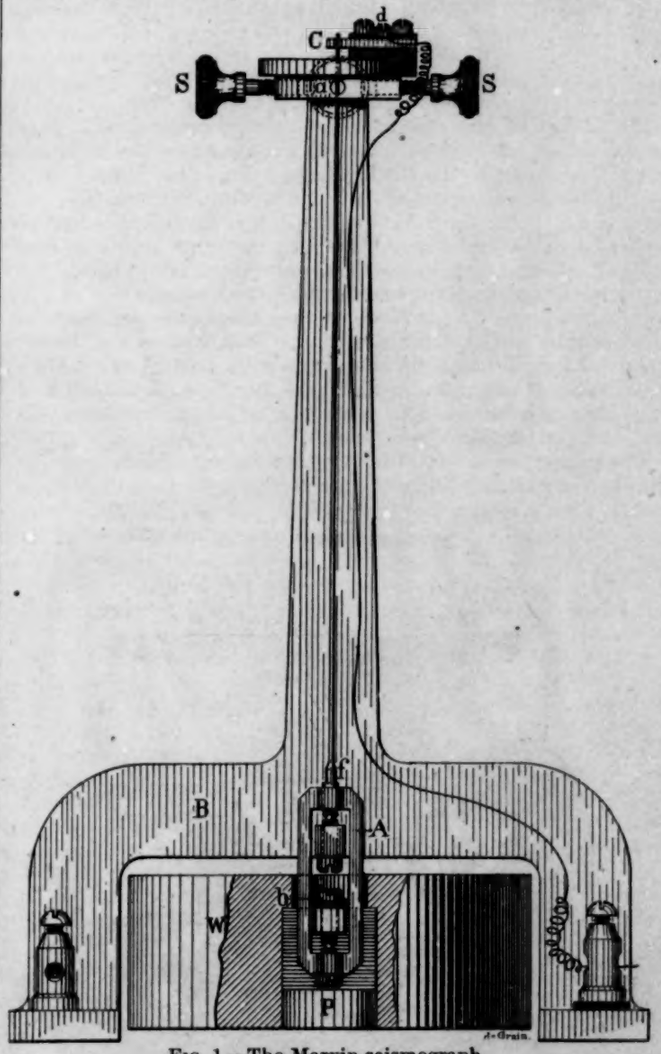


FIG. 1.—The Marvin seismograph.

The instrument was designed to be as simple as possible and to record only the time of beginning of the disturbance. Some idea of the duration of the earthquake is also given, but not very accurately. The record is made on a scale of

2½ inches per hour, which enables the time of an event to be measured to within from fifteen to thirty seconds. That the instrument is sufficiently sensitive and reliable is shown by the fact that except when being tested no record has thus far been obtained except for real earthquakes.

The instrument is a modification of a form devised by the writer early in 1885, as is shown in Fig. 1.

W is a heavy lead weight, shown partly in section, and is suspended on a short steel link, *A*. The weight is pivoted to this link by means of the sharp pointed screw, *b*, the point being just above the center of gravity of the weight, so that the latter will balance and remain stable on the pointed support. A similar pointed support, *f*, is provided for the top of the link, which hangs from a small projection from the frame of the instrument, *B*. The pin, *f*, is extended upward from the link, being in all about 6 inches long, and is made slender and flexible. At the top the needle-like prolongation of the link, *A*, is tipped with platinum, and passes loosely through a small hole in the plate, marked *C*. The hole in the plate is bushed with platinum; four screws, two of which, *S*, *S*, are shown, enable one to adjust the position of the plate, so that the platinum-tipped needle will pass through the center of the hole and not touch it on any side. The plate, *C*, is electrically insulated from the rest of the instrument, but connected with a wire to a binding post on the base.

The action of the instrument is easily understood. Any movement of the base or frame of the instrument affects the point from which the link, *A*, is suspended. The heavy weight, *W*, does not partake of this motion, but tends to remain at rest; the result is that the link is displaced from the vertical a little, and the motion is greatly magnified at the top end of the long needle-like extension. Supposing the needle to be originally set so as not to touch the sides of the hole in the plate, *C*, it is plain that a disturbance will cause it to repeatedly strike the sides of the hole, and, when the instrument is appropriately connected with batteries and electrical apparatus, the contact of the needle with the sides of the hole can be made to stop a clock or to produce an automatic record on a sheet of paper.

The register used with the Weather Bureau seismograph is simply a so-called weekly anemometer register, and is shown in Fig. 2.

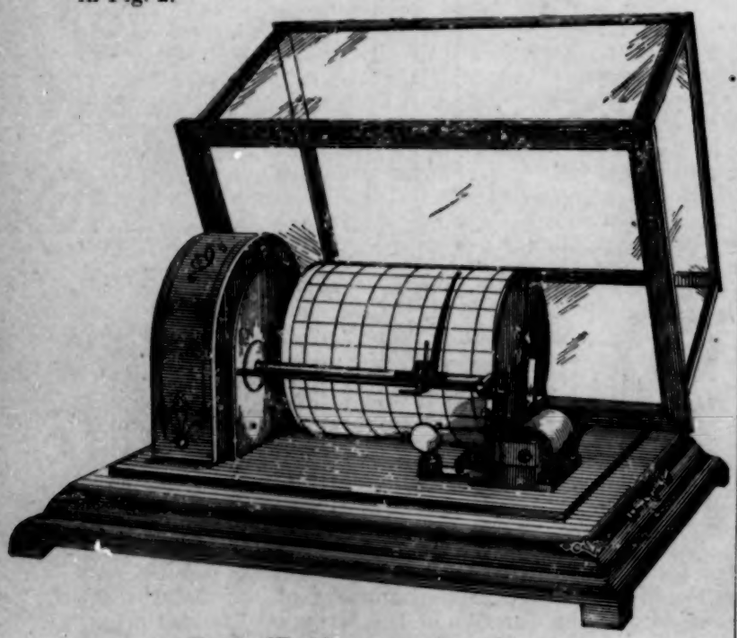


FIG. 2.—Weekly anemometer register.

The cylinder of this register revolves once in six hours, and the pen is so controlled as to trace a spiral line on the sheet which receives the record for seven days without changing. The electro-magnet seen on the base of the instrument is connected with the seismograph, and whenever the circuit is closed the pen makes a jog or offset in the line traced. The sheet of paper is marked off with hour lines and finer spaces of five minutes each, so that the time of any event marked by the offsets in the trace made by the pen can be accurately measured. A minute of time is represented by a space of one twenty-fourth of an inch on the sheet. As the clock which drives the cylinder can not be depended upon to keep time accurately, the electro-magnet is also connected with a good pendulum clock fitted with a device which momentarily closes the circuit at intervals of exactly five minutes to the nearest second. Finally, the error of the pendulum clock is obtained and recorded almost daily from the telegraphic time signals sent out by the Naval Observatory.

The record of an earthquake consists of a succession, more or less prolonged, of lateral jogs or strokes on the line traced by the pen, whereas the clock record consists of a single stroke occurring regularly and of very short duration.

The apparatus thus described requires very little attention to maintain in operation. The time scale of the record is greatly condensed, but less than half a minute of time can be discerned.

The seismograph is mounted on a stone slab cemented to the floor of the basement of the Weather Bureau building. It does not appear to be disturbed by the ordinary tremors due to artificial causes.

TORNADOES AT CHERRY HILL, N. J., AND WOODHAVEN, LONG ISLAND, N. Y.

Text by Mr. E. H. EMERY; photographs* by Mr. H. GOUCHER, Assistants at the Weather Bureau station, New York, N. Y.; dated August 21, 1895.

In the afternoon of July 13, 1895, there occurred in northeastern New Jersey, western end of Manhattan Island, and western portion of Long Island a series of atmospheric disturbances, partaking of the nature of severe wind and hail storms in some places, and in others of tornadic movements. From Atlantic Highlands to Cape May thunderstorms, with hail and high winds, prevailed, damaging crops and fruit trees. At Cherry Hill, N. J., and Woodhaven, L. I., the storms were tornadic in their chief phases and usual effects. Cherry Hill is distant north of Hackensack, N. J., 1½ miles, and northwest of Harlem, N. Y., 11 miles. Harlem is 11½ miles northwest of Woodhaven. The path of the storm was in a southeasterly direction, passing over Harlem, N. Y., thence to Woodhaven. [Woodhaven is about 8 miles east-northeast of the Weather Bureau station in New York City.]

At Cherry Hill the storm commenced its destructive work. Four dwellings and a depot were destroyed and 26 other buildings partly shattered. Amount of damage estimated at $50,000. Three persons were killed. About 3.30 p. m. black clouds were observed coming from the northwest; it was 3.45 p. m. when the storm broke out, and five minutes later came the destructive wind.

At nearly the same time that buildings were being blown down at Cherry Hill a severe wind and hail storm was raging in that portion of New York called Harlem, between One hundred and twenty-fifth street and Woodlawn Cemetery, East River and Kings Bridge, continuing for twenty minutes. Here the storm had nothing of the tornado about it. From this point the disturbance passed on to one of the suburbs of Brooklyn, which is southeast of Harlem. The destruction by violent winds began at Cypress Hills Cemetery. As observed by an eye witness, there seemed to be a meeting of two large black masses of clouds, one coming from the north-

*The photographs are not reproduced.

west the other from the southwest. After coming together, the movement of the whole mass was toward the southeast. The color of the under mass of clouds was of a dirty brown. Darkness came on, and with it gusts of wind. A whirring noise was heard. The trees in the cemetery were observed to go down as the cloudy mass approached. The storm emerged from the cemetery with "a roar" and a funnel-shaped cloud with a twisting movement. After leaving Cypress Hills, the storm followed a varying course along Jamaica avenue to Enfield street, thence parallel with Rockaway road to Woodhaven.

Considerable damage was done to trees and telegraph poles on Jamaica avenue and Enfield street. Ten dwellings on Rockaway road were injured, eight on Second street, and three in University place; in addition to these, the brick schoolhouse was partially destroyed. Union Race Course, which is north of the railroad track, suffered badly, but not so much as the district south of the track. The funnel-shaped cloud, in its passage to the southeast, was observed to rise and fall at intervals; when high above the houses little or no damage was done, but when it came nearer to the earth, buildings in the path sustained the most injury. After leaving Woodhaven, the tornado took a southerly course, decreasing in violence, and passed out over Jamaica Bay, where the waters were observed to be greatly disturbed.

The length of path of storm, where evidences of the tornado are to be seen, is three-fourths of a mile; the width of greatest destruction is 300 yards, while that of partial destruction is 650 yards.

After the storm a personal inspection of a corn field and several tomato patches showed a very nice distribution of the stalks and plants, as follows: On the southwest side of the path of the storm, they were all lying with their tops toward the east and northeast with notable regularity, while on the northeast side the tops were toward the southwest and west. Similar observations were extended to the scattered timbers of buildings; in many places the same order of arrangement was apparent.

At Woodhaven one person was killed. The investigating committee at Woodhaven has placed the amount of damage to buildings at $25,000. These figures do not include the injury done to the schoolhouse, which will amount to $18,000.

The atmospheric conditions observed at New York station during the afternoon of July 13, 1895, and reduced to sea level, are here given:

75th meridian time.	Pressure.	Temperature.	Time.	Wind direction.	Velocity.
	Inches.	°			*Miles.*
1 p. m.	29.64	70	From 1 to 2 p. m.	S.	9
2 p. m.	29.63	73	2 to 3 p. m.	S.	12
3 p. m.	29.60	72	3 to 4 p. m.	S. and SW.	12
4 p. m.	29.60	73	4 to 5 p. m.	N.	13
5 p. m.	29.61	70	5 to 6 p. m.	E.	3
6 p. m.	29.62	71			

A squall struck the New York station shortly after 3 o'clock, with light rain from 3.18 p. m. to 3.23 p. m., and a maximum velocity of 26 miles.

ATMOSPHERIC TEMPERATURES DURING THE MONTH OF JULY.

By W. F. R. PHILLIPS, M. D., U. S. Weather Bureau.

Atmospheric temperature is well recognized as an important element of climate in general and climates in particular.

The fact that two or more places may have the same mean temperature, either annual, monthly, or daily, does not, of necessity, imply identical thermal conditions. An example will illustrate this fact more forcibly than an elaborate theoretical explanation. Thus, Des Moines, Iowa, and Tatoosh Island, Wash., have the same annual mean temperature, namely, 49°. But the mean temperature of the hottest month at Des Moines is 75°, and at Tatoosh Island 56°. The mean temperature of the coldest month is 18° at Des Moines, and 41° at Tatoosh Island. The highest temperature recorded at Des Moines is 104°, at Tatoosh Island 78°, and the lowest temperature 30° below zero at Des Moines and 7° above at Tatoosh Island. The total range is 134° for the former and 85° for the latter.

Thus it is seen that for a correct apprehension of the thermal conditions of different places, even though on the same isotherm, it is necessary to consider the various phases of atmospheric temperature.

These phases will be taken up in the order following:

1. The mean daily temperature, or the average degree of heat experienced in twenty-four hours; which, meteorologically defined, is the arithmetical mean of twenty-four hourly observations; but which, in practice, is found to be sufficiently accurate and more easily obtained by using the mean of the highest and lowest temperatures recorded by self-registering thermometers.

2. The mean maximum temperature, or the average of a series of the highest daily temperatures recorded during a given time.

3. The mean minimum temperature, or the average of a series of the lowest daily temperatures recorded during a given time.

4. The mean daily range of temperature, or the difference between the mean maximum and the mean minimum.

5. The mean daily variability of the temperature, or the average difference between the temperatures of any two consecutive days.

6. The absolute maximum temperature, or greatest degree of heat experienced at any moment during a given time.

7. The absolute minimum temperature, or the lowest degree of heat experienced at any moment during a given time.

8. The absolute range of temperature or the difference between the absolute maximum and minimum.

The first five phases show the temperature probabilities, and the last three the temperature possibilities of a climate. In addition to these statistics of temperature, it is desirable that we should possess information as to the frequency of spells of several consecutive days of either very hot or very cold weather; but to obtain this information it is first essential that we settle upon what shall be regarded as the minimum limit of an excessive departure from average conditions. This is not by any means an easy matter to determine, as an instance will show. At Galveston, Tex., only four times in 15 years has the mean daily temperature in July been 4° above the normal for the month—for that period, 84°. At St. Louis, Mo., in the same years there have occurred 18 days having mean temperatures of 10° or more above the normal, 79°, or more than twice the excess at Galveston. If only the numerical values of the departures from the normals be used as the standard of comparison, Galveston, when compared with St. Louis, would appear never to suffer from periods of abnormally excessive heat; but we find that while in 15 years on sixteen occasions a mean daily temperature of 87° has been maintained for three or more consecutive days at St. Louis, yet, during the same period on twenty-three occasions, a mean of 86.3° has been maintained for three or more days at Galveston. The average duration of these periods has been 6.8 days at Galveston, and 5.6 days at St. Louis.

The question as to the possible physiologic effects of such temperatures, as well as the determination of the limits that shall constitute excessive departures, are features worthy of future study and consideration.

The subject to which this article particularly relates is the distribution of temperature over the United States during the month of July. This month has been chosen, because, first,

it is the hottest period of the year, secondly, the high temperatures prevailing during this month are closely associated with the prevalence of a fatal disorder of infantile life—cholera infantum, for which change of climate is recognized as an effective measure of both prevention and cure—and, thirdly, the probability that the great heat of this month is not altogether unconnected with the sudden increase in the prevalence of enteric fever that usually takes place in the succeeding months of August and September.

The temperature records and data herein made use of are those of the Signal Service, War Department, from 1871 to 1891, in which latter year they were transferred to the Weather Bureau, Department of Agriculture, and have been continued to the present time.

With but few exceptions the records are of fifteen or more consecutive years, while some are continuous from 1871 to 1892.

Throughout the month of July the mean daily temperature exceeds 70° in the States bordering on the South Atlantic and Gulf coasts, in the States of the Ohio, lower and middle Mississippi valleys, in the greater part of the Middle Atlantic States, Kansas, and Iowa. In the extreme northern part of the United States the mean daily temperature seldom reaches 70° for more than three or four days. The lowest mean temperature recorded is 56° at Tatoosh Island, in the extreme northwest corner of the country, and the highest mean temperature is 92° at Yuma, Ariz.

The normal mean temperatures for July recorded at the Weather Bureau stations along the northern border of the United States, beginning at Eastport, Me., and going westward, are as follows: Eastport, 60°; Oswego and Rochester, 70°; Buffalo, 69°; Erie and Cleveland, 71°; Sandusky and Toledo, 7°; Detroit, 72°; Port Huron, 68°; Alpena, 66°; Marquette, 65°; Duluth and St. Vincent, 66°; Williston, 69°; Havre, 68°; Spokane Falls, 69°; Port Angeles, 57°; Tatoosh Island, 56°. Along the southern limits, beginning at Key West with 84°, and going westward: Tampa, 82°; Pensacola, 81°; Mobile, 83°; New Orleans, 82°; Galveston and Corpus Christi, 84°; El Paso, 83°; Yuma, 92°; San Diego, 68. On the Atlantic Coast are temperatures ranging from 60° at Eastport to 84° at Key West, or a difference of a little more than one degree of temperature for each degree of latitude. On the Pacific Coast the difference between Tatoosh Island, 56°, and San Diego, 68°, is 12° of temperature for 16° of latitude, or three-fourths of a degree of temperature for each degree of latitude; but the difference is not uniformly distributed, from Tatoosh Island to San Francisco there are but 3° difference, while from San Francisco to San Diego there are 9° difference.

The isotherm of 70° passes through southern New Hampshire, westward through northern New York, across Lake Erie, through lower Michigan, into extreme southern Wisconsin; then northwesterly through Wisconsin, traversing central Minnesota, the contiguous portions of the Dakotas, into Montana, where, bending southward, it passes through Idaho and parts of Oregon into northern California to near the coast, where it turns sharply to run southeasterly till near Los Angeles it leaves the land and emerges on the Pacific.

The isotherm of 80° traverses the southeastern portions of North Carolina, the northern parts of South Carolina and Georgia, northeastern Alabama, central and western Tennessee, northern Arkansas, Indian Territory, extreme northwestern Texas, southern New Mexico, central Arizona, and southern California.

The isotherm of 90° is seen in the southwestern portion of Arizona and in southwestern California. Small portions of the isotherm of 60° are seen in northern Maine and in northwestern Washington.

Between the isotherms of 70° and 80° are included all the States, except Oregon, Washington, and parts of New Hampshire, Vermont, Michigan, Minnesota, North Dakota, Montana, and Idaho to the north of 70°, and Texas, Louisiana, Mississippi, and Florida, and parts of Arkansas, Georgia, and South Carolina to the south of 80°.

The mean maximum temperature varies from 69° at Eastport to 90° at Key West, on the Atlantic Coast; from 61° at Tatoosh Island to 74° at San Diego, on the Pacific Coast; and from 77° at St. Vincent to 98° at El Paso, and 107° at Yuma, in the interior. In the Gulf States the mean maximum ranges from 90° to about 95°, and in the northwestern and western parts of Texas from 93° to 99°. On the Atlantic Coast south of North Carolina the mean maximum is 90°. In the Middle Atlantic States, the Ohio, middle Mississippi and lower Missouri valleys, in Kansas, Nebraska, Colorado, and the central Plateau regions, and in the greater part of California the mean maximum ranges between 85° and 88°. In the States along the northern boundary of the country and in Wyoming the mean maximum varies from 75° to 80°.

The mean minimum temperature varies from 52° at Eastport and Tatoosh Island to 79° at Key West and 62° at San Diego. In the South Atlantic and Gulf States and in the lower part of the middle Mississippi Valley the means are generally about 73°, while in the Middle Atlantic States, the Ohio Valley, lower Lake Region, lower Missouri and upper Mississippi Valleys, in Kansas and Nebraska the mean minimum is about 65°. In nearly all the States of the Rocky Mountain and Plateau regions and of the Pacific Slope the mean minimum is about 55°.

East of the Mississippi River during July the mean daily range, or difference between the mean of the maximum and the minimum, is about 18°, and west of the Mississippi it is from 5° to 10° greater, increasing with the elevation above sea level. On the Pacific Slope the mean daily range is generally from 10° to 15°, but may vary considerably on either side of these limits as it is affected by either altitude or proximity to water, as at Sacramento it is 30°, while at Tatoosh it is only 9°.

The mean variability of temperature, or change from day to day, is less in July and August than in any other months of the year, and is so nearly alike in either that it is not practicable to discriminate between them in this respect; in other words, July and August are the most equable months of the twelve as regards temperature. On the Pacific and Gulf coasts the variability is little more than one degree. As we go northward and inland the variability gradually increases. In the latitude of Savannah it is equal to 2° and in that of Washington, D. C., 3°. The greatest mean daily is observed in Montana and in the Dakotas, where it reaches 4° to 5°.

The absolute maximum temperatures recorded in the different States in July are pretty nearly uniform. One hundred and eight degrees have been observed at Havre, Mont., and 106° at San Antonio, Tex. Some of the most notably high temperatures are: 122° in Death Valley, Cal.; 118° at Yuma, Ariz.; 112° at El Paso, Tex., and Red Bluff, Cal.; 110° at Tucson, Ariz. The place having the lowest maximum is Tatoosh Island, 78°. Temperatures of 102° to 105° have been observed in nearly all the interior States.

The absolute minimum temperatures in July have ranged from 70° at Corpus Christi, Tex., to 31° at Havre, Mont. The minimum temperature appears to be more influenced by latitude than the maximum.

The greatest absolute range (both monthly and daily) of temperature is, as might be inferred, experienced in the Dakotas and Montana, and the least along the Gulf Coast.

East of the Rocky Mountains the highest mean daily temperatures have been observed generally in the central valleys and in the South Atlantic States. The highest mean recorded for any one day is 94° at Augusta, Ga., and the next highest,

93°, at Kansas City and San Antonio. Mean daily temperatures of 91° and 92° have been recorded generally throughout these regions. On the immediate Gulf Coast and in the extreme lower Mississippi Valley the highest means for one day that have been noted have been from 87° to 89°. In New England, the Middle Atlantic States, the region of the Great Lakes, the Rocky Mountain and the Plateau regions the highest mean daily temperatures have been about 85°.

The lowest mean daily temperatures have ranged from 75° on the Gulf to 55° in the northern portions of the United States. In the greater part of the country the lowest mean temperatures range between 60° to 65°.

North of the thirty-fifth parallel of latitude the mean daily temperature is generally from 4° to 6° higher in July than in June, and from 2° to 3° higher than in August. South of this parallel the July means are from 2° to 3° greater than those for June, and 1° to 3° greater than for August.

NOTES BY THE EDITOR.

LETTER TO VOLUNTARY OBSERVERS.

U. S. DEPARTMENT OF AGRICULTURE,
WEATHER BUREAU,
Washington, D. C., July 20, 1895.

To Voluntary Observers, Forecast Displaymen, and Crop Correspondents of the Weather Bureau:

In assuming charge of the Weather Bureau, as its Chief, to which position I was recently appointed by the President of the United States, I desire to express to the voluntary observers, forecast displaymen, and weather crop correspondents through the Directors of the several State Weather Service organizations, my high appreciation of the value of the services, voluntarily rendered by them in their several lines, without which it would be wholly impracticable for the Bureau to carry on some of its most important work.

Having for a number of years been actively engaged in state weather service work, I have, in my official career, been placed in close relations with those serving the Bureau in a voluntary capacity, and the high estimate of the value of their cooperation is based upon a practical knowledge of the valuable results that have been attained.

It is my most earnest desire to make the Bureau of the utmost value to the general public in every way possible, and, with the continued cooperation of those who have contributed so much to that end in the past, it is believed that the future usefulness of the Bureau will be greatly increased.

Very respectfully,

WILLIS L. MOORE,
Chief of Weather Bureau.

REPLIES TO CORRESPONDENTS.

The great interest taken in meteorology is emphatically manifested by the self-denying labors of the voluntary observers throughout our country, who everywhere maintain meteorological records with a persistence and thoroughness that redounds to the benefit of science. The labors of such men during the past two centuries have been the basis on which our present knowledge is founded. Sometimes, however, the efforts of individuals to advance our knowledge take the form of rather wild suggestions. The Chief of the Weather Bureau finds frequent occasion to encourage the well-directed efforts of our most enterprising co-laborers, but those whose suggestions are not indorsed favorably should not be too deeply disappointed. Communications are often received that reveal imperfect knowledge of the laws of meteorology, even on the part of those who are otherwise well informed. This is not to be wondered at when we consider how few have had an opportunity of studying the motions of the atmosphere on a large scale, or of investigating the minuter details of localities, instruments, and records. In order, however, that the members of the service may profit by our wider knowledge of these matters the Chief imposes upon the editor the duty of making some response. He hopes thus to disseminate in this country sound views as to meteorology.

(*a*) *Thermometric scales used in meteorology.*

A recent proposition to change the scale of our thermometers, viz, to put the zero higher up, viz, at the so-called "blood-heat" or internal temperature of the human body, and to count all temperatures as negative below that point and positive above it, meets with unqualified disapproval. The thermometer was originally introduced into science by physicians, who wished to measure the so-called temperament of the patient, but this was nearly three hundred years ago, and the instrument that was used by the physician Sanctorius was crude and was, in fact, abandoned as soon as Galileo and the glass-blowers of Florence made more accurate instruments, almost identical with the mercurial and spirit thermometers of to-day. For nearly two centuries thermometer makers amused themselves with devising new variations on the early methods of graduating and numbering the scale. Any one of these would have answered the need of the meteorologist and all were more or less arbitrary, but the great diversity led to unnecessary confusion and trouble, and the tendency of the last century has been to use either the Centigrade or the Fahrenheit scale to the exclusion of all others. The motto of the scientific world is—uniformity and simplicity in the units and standards by which we measure all dimensions and forces. At present the metric system is the one most used by scientists, but the English system, which is far less simple, still has many adherents. No others are needed. Uniformity or conformity with a single standard is most desirable.

(*b*) *The winds of Japan and Arizona.*

A correspondent seems to have adopted the idea that the northwest winds of Japan and the southeast winds of Arizona may be considered as one system blowing towards each other and mutually affecting each other. A glance at any work on physical geography or meteorology shows that regions separated from each other so far as these, have lying between them other systems of winds, so that the conditions prevailing at these extremes can only affect each other by a very indirect route, if at all. It is true that northerly winds prevail at certain seasons on the coasts of China and Japan and at certain other seasons on the coast of California, but the latter wind is not at all to be considered as a continuation of the former. There can be no doubt but that the conditions and phenomena in the atmosphere over one part of the globe have some sort of an effect on the conditions and phenomena everywhere else, but what this effect may be, or how appreciable it is, is a very difficult question. Before we speculate on the influence of the weather in Japan upon that in Arizona we must make sure that we first understand the mutual influence of the weather in regions that are nearer home.

CLOUD PHOTOGRAPHY.

Referring to the article on cloud photography in the MONTHLY WEATHER REVIEW for May, Mr. A. J. Henry desires to state that in the formula for the developer the quantity of C and P should have been stated at 16 parts of each (by weight) to 100 parts of water (fluid ounces). In addition to the normal developer, there described, the following modifications may be found useful. For under-exposed plates use the normal developer without the bromide. When great contrasts are desired use the following: 75^{cc} H + 10^{cc} each P, C, and B.

MISCELLANEOUS PHENOMENA.

Under the above title it has been the custom for a century past throughout the world to invite all meteorological observers to make a record of a large variety of phenomena that are somewhat beyond the range of technical meteorology. Among these, in the first class, comes the phenomena that are ordinarily considered to belong to climatology, such as the migrations and habits of birds, mammals, and fishes; the freezing of lakes and rivers and the soil; the times of leafing, flowering, and ripening of plants.

In addition to climatology, there were included phenomena that belong to terrestrial physics, and may have some possible relation to meteorology, such as the shooting stars or meteors, the aurora, the earthquake and the ocean waves, or so-called tidal waves and storm waves.

By a resolution of a recent international meteorological congress the whole subject of terrestrial magnetism has been committed to the meteorological services when not otherwise specially provided for.

As the weather and the climate are subjects that directly affect every branch of human industry, it naturally happens that the number of meteorological observers far excells the sum total of all who are specially engaged in observing earthquakes, magnetics, meteors or any other terrestrial phenomenon, and it does seem desirable that they should contribute, as far as possible, to our knowledge of all that is going on about us. Is it not the duty of every one to contribute his mite toward the observations and investigations that are gradually enlarging our knowledge of the earth as the home of man?

The habits of regularity and exactness and the love of nature that distinguish our voluntary observers render it certain that science must look to them for work in the above-mentioned lines of miscellaneous observation. The earthquakes that occur throughout our country have awakened a desire to know more about their nature and origin. Those who cannot establish and maintain the Marvin seismograph, or some of the simpler forms, can at least take the greatest pains to keep a daily record of the errors of their watches or clocks on standard time, so that when an earthquake is observed they may be able to state the time correctly to within a few seconds, instead of making such a crude record as "about 10 or 15 minutes after 5 a. m." An exact record of the time of beginning and ending is of more use to the student of the subject than a general statement as to the direction or severity of the shock.

As self-registering meteorological and magnetic apparatus frequently show peculiar marks that are sometimes known to have been caused by slight earthquake disturbances, it is generally recognized as very desirable that a seismograph should be established in every magnetic and meteorological observatory where continuous registers are employed. In so far as this new piece of apparatus can be added to the others at our stations, we shall have the means of explaining anomalies on the automatic record sheets.

The editor desires to repeat a statement made by him on several occasions, namely, that the Weather Bureau seismograph is not only an efficient earthquake indicator, but an equally efficient burglar detector. A seismograph set up within or on a large safe, or within the vault of a safe deposit company would, by means of the proper telegraphic connections, give immediate notice of any serious disturbance by burglars. Those of our banks who maintain such instruments in working order and keep the record closely regulated to standard time, will contribute not only to their own security but to the collection of data important to the study of earthquakes.

This is a field in which the Weather Bureau and the banks can advantageously cooperate.

OBSERVATIONS AT HONOLULU.

Meteorological observations at Honolulu, Republic of Hawaii, by Curtis J. Lyons, Meteorologist to the Government Survey.

Pressure is corrected for temperature and reduced to sea level, but the gravity correction, —0.06, is still to be applied.

The absolute humidity is expressed in grains of water, per cubic foot, and is the average of four observations daily.

The average direction and force of the wind and the average cloudiness for the whole day are given unless they have varied more than usual, in which case the extremes are given. The scale of wind force is 0 to 10.

The rainfall for twenty-four hours is given as measured at 6 a. m. on the respective dates.

July, 1895.	Pressure at sea level.			Temperature.					Humidity.			Wind.				
									Relative.							
	6 a. m.	2 p. m.	9 p. m.	6 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	6 a. m.	9 p. m.	Absolute.	Direction.	Force.	Cloudiness.	Rain measured at 6 a. m.
	Ins.	*Ins.*	*Ins.*	°	°	°	°	°	%	%					*Ins.*
1 ..	30.18	30.10	30.14	74	78	75	80	72	85	70	6.9	ne.	4	6	0.21
2 ..	30.11	30.04	30.08	74	80	76	82	72	61	67	6.2	nne.	4	6-3	0.08
3 ..	30.08	30.04	30.10	74	82	75	83	71	63	74	6.7	ne.	4	4	0.11
4 ..	30.12	30.07	30.14	72	78	74	83	71	70	80	7.4	ne.	3	5	0.10
5 ..	30.13	30.07	30.13	70	82	75	83	70	70	74	7.2	ne.	2	3	0.15
6 ..	30.10	30.02	30.06	72	80	75	83	67	74	70	7.1	ne.	2	4	0.02
7 ..	30.07	30.00	30.04	77	83	75	84	71	57	74	7.0	ene.	3	0-6	0.00
8 ..	30.04	30.00	30.04	76	83	76	84	69	63	70	6.8	ene.	2	3	0.14
9 ..	30.03	29.99	30.08	76	82	76	83	70	60	70	6.8	e.	2	2	0.00
10 ..	30.08	30.04	30.09	76	83	77	84	71	58	67	6.8	ne.	2	1	0.00
11 ..	30.09	30.03	30.08	76	82	76	83	71	63	62	6.8	nne.	3	4	0.05
12 ..	30.05	30.01	30.05	75	82	75	83	72	63	66	6.6	e.	2	4-2	0.00
13 ..	30.04	29.99	30.03	76	83	76	84	71	60	70	6.7	ne.	3	2	0.00
14 ..	30.04	29.99	30.05	77	80	76	84	72	60	77	7.2	ne.	3	3-10	0.05
15 ..	30.03	30.00	30.06	76	81	77	84	73	72	72	7.1	ne.	4	4-9	0.03
16 ..	30.06	30.03	30.07	77	81	77	83	74	63	74	7.2	e.	3	5-8	0.02
17 ..	30.09	30.03	30.07	76	81	77	83	73	60	64	6.9	ne.	4	6	0.04
18 ..	30.07	30.00	30.04	77	81	76	84	75	56	67	6.7	ene.	2	3	0.00
19 ..	30.04	30.00	30.05	72	82	76	85	71	60	67	6.7	ne.	3	3	0.11
20 ..	30.04	29.99	30.04	76	85	78	86	74	60	71	7.0	ne.	2	3	0.04
21 ..	30.06	30.03	30.08	79	83	78	85	77	60	74	7.5	ne.	3	3	0.00
22 ..	30.13	30.03	30.11	78	81	77	83	76	61	65	6.7	ene.	4	5	0.00
23 ..	30.08	30.00	30.05	76	82	75	84	74	60	80	6.8	ne.	5	2	0.00
24 ..	30.05	30.00	30.04	75	82	77	84	74	66	70	7.1	nne.	5	2	0.05
25 ..	30.07	30.05	30.09	76	82	76	85	75	58	67	6.6	ene.	3	3-4	0.00
26 ..	30.09	30.02	30.07	74	83	76	85	72	64	70	6.8	ne.	3	2	0.00
27 ..	30.06	30.00	30.04	72	83	76	84	72	70	74	7.3	ne.	3	5	0.05
28 ..	30.07	30.03	30.09	75	84	78	86	72	70	70	7.4	ne.	3	3	0.13
29 ..	30.10	30.06	30.10	76	82	75	86	74	67	78	7.2	ne.	3	5	0.03
30 ..	30.09	29.99	30.05	73	84	77	85	71	74	74	7.5	ne.	3	2-5	0.07
31 ..	30.00	29.94	30.00	75	82	78	83	75	77	75	8.0	ne.	3	7-10	0.07
	30.07	30.02	30.07	75.1	81.8	76.7	83.8	72.3	64.3	70.7	7.0	.....	.....	.....	1.55

The monthly summary for July is: Mean temperature, 77.7; the normal is 78.3; extreme temperatures, 85 and 69. Disturbance periods occurred on the 1st, 16th, 22d, and 31st. Humidity and temperature this month higher than for two years, and barometer down at last to normal. Very heavy rain on the Island of Hawaii on the 31st. Slight earthquake, Hawaii, 16th.

OBSERVATIONS IN ALASKA.

The accompanying tables, on pp. 281, 282, present in full the record of meteorological observations just received from V. C. Gambell, voluntary observer at St. Lawrence Island, Alaska; latitude 63° 34′ N., longitude 171° 45′ W.; height above sea, 30 feet. The thermometers were 6 feet above the ground; the rain gauge is stated to be 20 feet above ground, but this may be a slip for "above sea level." The instruments were furnished by the Weather Bureau, but the rain gauge was not received by Mr. Gambell until May, 1895. Apparently he read only the maximum and minimum thermometers during October, November, and December, 1894, but in January, 1895, he began to read the standard dry thermometer at 7 a. m., 2 p. m., and 9 p. m., local time, in addition to the maximum and minimum thermometer. The blanks in the columns of wind direction and force are published as recorded, but are presumed to be intended for calms and have been so treated by the observer in computing the average wind force. The expressions "snow" and "a little snow" in the original record appear to refer to amounts that were too small for measurement or that could not be measured on account of drifting; for convenience of printing they are replaced by a * and †, respectively. The depth of snow on the ground at the middle and end of the month gives a little better idea of the snowfall than do these individual statements. The observer has recorded the dates of solar and lunar halos without further

description; he has also recorded the dates on which auroras were observed, but it is not known whether they were always looked for and recorded. The aurora dates are as follows: October, none; November, none; December, 1894, 21; January, 1895, none; February, 1, 2, 15, 16, 27; March, 18; April, none; May, none. The original record of *minus* 11 as the minimum temperature on the 4th of April, 1895, has been changed to *plus* 11 by the Editor, as it seemed incredible that the abnormal diurnal range of 37° could have occurred on a cloudy night with a light breeze. The record "....3" for the wind at 9 p. m., December 26, 1894, has been changed to "e., 3."

METEOROLOGICAL TABLES.

By A. J. HENRY, Chief of Division of Records and Meteorological Data.

Table I gives, for about 130 Weather Bureau stations making two observations daily and for about 20 others making only the 8 p. m. observation, the data ordinarily needed for climatological studies, viz, the monthly mean pressure, the monthly means and extremes of temperature, the average conditions as to moisture, cloudiness, movement of the wind, and the departures from normals in the case of pressure, temperature, and precipitation.

Table II gives, for about 2,400 stations occupied by voluntary observers, the extreme maximum and minimum temperatures, the mean temperature deduced from the average of all the daily maxima and minima, or other readings, as indicated by the numeral following the name of the station; the total monthly precipitation, and the total depth in inches of any snow that may have fallen. When the spaces in the snow column are left blank it indicates that no snow has fallen, but when it is possible that there may have been snow of which no record has been made, that fact is indicated by leaders, thus (....).

Table III gives, for about 30 Canadian stations, the mean pressure, mean temperature, total precipitation, prevailing wind, and the respective departures from normal values. Reports from Newfoundland and Bermuda are included in this table for convenience of tabulation.

Table IV gives, for 82 stations, the mean hourly temperatures deduced from thermographs of the pattern described and figured in the Report of the Chief of the Weather Bureau, 1891–'92, p. 29.

Table V gives, for 67 stations, the mean hourly pressures as automatically registered by Richard barographs, except for Washington, D. C., where Foreman's barograph is in use. Both instruments are described in the Report of the Chief of the Weather Bureau, 1891–'92, pp. 26 and 30.

Table VI gives, for 136 stations, the arithmetical means of the hourly movements of the wind ending with the respective hours, as registered automatically by the Robinson anemometer, in conjunction with an electrical recording mechanism, described and illustrated in the Report of the Chief of the Weather Bureau, 1891–'92, p. 19.

Table VII gives the danger points, the highest, lowest, and mean stages of water in the rivers at cities and towns on the principal rivers; also the distance of the station from the river mouth along the river channel.

Table VIII gives the maximum, minimum, and mean readings of the wet-bulb thermometer for 135 stations, as determined by observations of the whirled psychrometer at 8 a. m. and 8 p. m., daily.

The difference between mean local time and seventy-fifth meridian time is also given in the table.

Table IX gives, for all stations that make observations at 8 a. m. and 8 p. m., the four component directions and the resultant directions based on these two observations only and without considering the velocity of the wind. The total movement for the whole month, as read from the dial of the Robinson anemometer, is given for each station in Table I. By adding the four components for the stations comprised in any geographical division one may obtain the average resultant direction for that division.

Table X gives the total number of stations in each State from which meteorological reports of any kind have been received, and the number of such stations reporting thunderstorms (T) and auroras (A) on each day of the current month.

Table XI gives, for 42 stations, the percentages of hourly sunshine as derived from the automatic records made by two essentially different types of instruments, designated, respectively, the thermometric recorder and the photographic recorder. The kind of instrument used at each station is indicated in the table by the letter T or P in the column following the name of the station.

Table XII gives the records of hourly precipitation as reported by stations equipped with automatic gauges, of which 37 are known as float gauges and 7 as weighing rain and snow gauges.

Table XIII gives the record of excessive precipitation at all stations from which reports are received.

Table XIV gives a record of the heaviest rainfalls for periods of five and ten minutes and one hour, as reported by regular stations of the Weather Bureau furnished with self-registering rain gauges.

Additional information concerning the tables will be found in the January, 1895, REVIEW.

TABLE I.—*Climatological data for Weather Bureau Stations, July, 1895.*

Stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure in inches.			Temperature of the air, in degrees Fahrenheit.									Humidity and precipitation.					Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Monthly temperature data since opening station.			
			Mean pressure, 8 a. m. and 8 p. m. +2.	Mean reduced.	Departure from normal.	Mean max. and min. +2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					Absolute maximum.	Year.	Absolute minimum.	Year.
New England.						60.6	— 1.9										4.60	+ 0.9													
Eastport	76	23	29.85	29.94	+ .02	59.4	— 1.0	78	24	67	47	13	52	24	53	81	3.17	— 1.1	11	5,035	s.	28	s.	28	5	20	6	5.8	91	1894	45	*
Portland, Me	103	24	29.81	29.91	— .01	65.8	— 2.2	86	21	74	52	*	58	24	58	80	3.59	— 0.1	13	5,141	s.	29	s.	30	7	11	13	6.5	97	*	48	1886
Northfield	872	9	29.05	29.95	+ .01	63.7	— 1.5	89	8	75	41	11	52	37	55	75	2.82	— 0.6	15	5,840	s.	37	n.	9	7	14	10	6.0	93	1894	38	*
Boston	125	25	29.82	29.95	+ .01	69.3	— 2.5	85	8	77	54	31	62	22	58	72	2.98	— 0.6	12	6,973	nw.	30	ne.	4	10	13	8	5.2	87	1892	48	1891
Nantucket	14	9	29.96	29.97	— .04	66.4	— 1.4	80	21	72	56	13	61	17	60	82	4.06	+ 1.1	12	5,970	w.	30	s.	4	10	13	8	5.2	87	1892	48	1891
Woods Holl	.....	18	.....	.....	.....	67.0	— 1.2	80	23	72	54	4	62	17	.....	.....	4.42	+ 1.1	9	8,566	s.	36	sw.	30	12	13	6	4.5	90	1876	51	1879
Vineyard Haven	.....	9	.....	.....	.....	69.4	— 1.2	87	21	77	56	11	62	22	.....	.....	6.37	+ 3.5	12	.....	sw.	.....	.....	.....	12	9	10	.....	96	1892	45	1893
Block Island	27	15	29.94	29.97	.00	66.8	— 2.0	79	18	72	52	6	61	17	62	86	8.57	+ 5.4	11	7,619	sw.	43	ne.	4	4	21	6	5.6	88	1892	52	1893
Narragansett Pier	.....	14	.....	.....	.....	67.6	— 2.6	86	22	75	51	31	60	24	.....	.....	4.97	+ 1.2	11	.....	sw.	.....	.....	.....	17	4	10	.....	93	1892	42	*
New Haven	107	23	29.84	29.95	— .02	69.0	— 2.3	89	21	77	51	31	61	24	60	75	3.77	— 1.6	12	4,881	s.	34	w.	30	14	12	5	4.3	96	1892	40	1890
New London	45	25	29.90	29.98	+ .01	68.1	— 2.7	84	21	75	54	3	61	22	63	84	5.83	+ 1.5	11	4,700	nw.	30	nw.	13	11	13	7	4.7	93	*	51	1879
Mid. Atlan. States.						72.0	— 3.1										3.52	— 1.2													
Albany	85	22	29.87	29.96	+ .00	70.4	— 2.6	90	20	80	54	31	61	27	58	69	4.02	0.0	12	4,854	s.	25	se.	5	11	13	7	4.8	98	1890	48	1890
New York	314	25	29.64	29.97	— .01	70.8	— 3.0	89	21	78	55	*	64	21	60	72	4.40	— 0.2	14	8,251	nw.	45	s.	27	12	11	8	5.4	99	1876	55	1895
Harrisburg	377	7	29.59	29.99	— .04	71.4	— 1.5	95	30	81	53	15	62	29	60	70	1.16	— 3.1	10	4,325	w.	30	w.	22	15	6	10	4.6	98	1892	50	1890
Philadelphia	117	25	29.86	29.98	— .01	73.2	— 2.9	94	21	82	57	31	65	26	59	65	3.23	— 1.3	11	6,706	nw.	28	sw.	27	11	10	10	5.1	101	1892	54	*
New Brunswick	.....	9	.....	.....	.....	70.8	— 2.5	94	21	82	50	12	60	32	.....	.....	4.24	— 0.5	12	.....	w.	.....	.....	.....	3	19	9	....	100	1894	49	1891
Baltimore	179	25	29.80	29.99	+ .01	73.1	— 5.5	95	21	82	55	31	64	31	60	66	3.40	— 1.5	9	4,541	nw.	35	nw.	27	14	9	8	4.3	102	1887	55	*
Washington	112	25	29.88	30.00	+ .01	72.8	— 4.8	94	20	82	52	31	64	27	62	75	4.50	— 0.2	14	3,655	nw.	36	nw.	20	14	7	10	4.5	103	1887	52	1895
Cape Henry	.....	22	.....	.....	.....	73.7	— 1.9	93	22	83	56	15	68	23	.....	.....	2.97	— 2.8	12	.....	sw.	.....	.....	.....	7	17	7	....	101	*	56	1895
Lynchburg	686	25	29.30	30.02	+ .02	74.8	— 3.7	97	18	85	57	4	65	29	63	71	2.94	— 0.8	9	2,226	sw.	22	sw.	15	8	16	7	5.1	102	1887	54	*
Norfolk	57	25	29.94	30.00	— .01	76.4	— 2.7	95	18	84	63	26	69	23	66	76	4.36	— 1.2	14	5,260	ne.	30	sw.	9	13	7	11	5.1	102	*	57	1892
S Atlantic States.						73.0	— 1.6										6.55	+ 0.3													
Charlotte	773	17	29.22	30.02	— .01	77.0	— 2.9	97	18	86	60	3	68	26	65	73	2.94	— 3.1	8	4,274	sw.	22	sw.	1	11	15	5	4.5	102	1887	55	1891
Hatteras	11	15	30.02	30.08	.00	76.8	— 1.1	85	18	81	68	5	72	17	70	83	7.62	+ 1.5	12	8,970	sw.	34	sw.	25	13	13	5	4.5	92	1881	61	1885
Kittyhawk	9	21	30.00	30.01	.00	76.3	— 2.3	94	18	82	64	4	71	19	69	82	6.50	+ 0.9	10	9,555	ne.	45	sw.	24	14	6	11	4.5	107	1887	58	1892
Raleigh	398	9	29.62	30.02	— .02	76.4	— 1.9	97	18	85	60	3	67	26	67	78	7.08	— 0.8	15	3,371	sw.	31	nw.	15	9	12	10	5.3	103	1887	54	1892
Wilmington	78	25	29.95	30.03	.00	78.2	— 1.9	98	17	86	63	3	71	21	70	82	4.82	— 2.5	12	5,647	sw.	30	s.	24	18	4	9	4.0	103	1879	58	1890
Charleston	52	25	30.02	30.07	+ .03	81.8	— 0.8	95	10	88	67	3	75	19	72	77	6.46	— 0.9	13	5,729	sw.	36	sw.	20	6	25	0	4.8	104	1879	64	1894
Columbia	.....	9	.....	.....	.....	79.8	— 1.5	96	23	91	62	3	69	26	.....	.....	5.50	0.0	10	.....	sw.	.....	.....	.....	8	18	5	....	104	1887	54	1892
Augusta	180	24	29.85	30.04	+ .03	80.2	— 2.0	95	16	90	65	*	71	26	69	76	4.31	— 0.8	11	3,596	sw.	42	w.	8	13	12	6	4.5	105	1878	60	1894
Savannah	98	25	29.96	30.06	+ .01	81.6	— 1.2	98	30	91	65	5	72	23	72	81	9.06	+ 3.9	18	4,978	sw.	30	nw.	8	8	19	4	4.8	105	1879	64	1891
Jacksonville	43	24	30.03	30.08	+ .03	81.8	— 0.8	96	9	91	70	16	78	24	72	80	11.21	+ 4.6	16	5,467	sw.	30	sw.	30	1	27	3	5.7	104	1879	66	*
Florida Peninsula.						81.0	— 1.1										5.49	— 1.4													
Jupiter	28	8	30.08	30.11	+ .01	81.1	— 1.2	95	28	88	68	4	74	30	73	79	5.88	— 0.2	14	5,392	s.	25	sw.	5	9	19	3	4.9	95	1889	68	1895
Key West	22	25	30.10	30.12	+ .06	83.6	— 0.8	91	31	80	73	4	79	15	73	71	0.62	— 3.8	8	4,632	e.	25	ne.	3	8	19	4	4.9	100	1886	68	1888
Tampa	36	6	30.07	30.11	.....	81.0	— 1.1	93	21	80	69	4	74	24	74	82	10.63	+ 0.3	20	4,053	w.	24	se.	10	5	17	9	5.9	95	1893	65	1890
Titusville	44	9	30.07	30.11	+ .01	80.8	— 1.3	93	30	88	69	10	73	21	74	82	4.82	— 2.0	17	6,849	sw.	47	n.	9	13	17	1	4.4	99	1887	66	1893
East Gulf States.						82.2	— 0.6										4.35	— 1.8													
Atlanta	1,131	17	28.80	30.05	— .02	77.0	— 1.4	92	18	85	63	11	69	23	68	79	2.75	— 1.7	15	5,789	nw.	36	sw.	6	11	11	9	5.5	100	1887	58	*
Pensacola	56	16	30.01	30.07	+ .02	81.6	— 0.7	93	17	87	69	1	75	21	74	80	5.33	— 1.5	13	6,151	sw.	40	nw.	17	11	12	8	5.1	99	1887	64	1892
Mobile	57	25	30.01	30.07	+ .03	81.2	— 0.5	95	29	89	68	9	74	23	74	82	4.53	— 1.9	12	4,989	sw.	35	sw.	9	1	15	15	7.1	101	*	64	1892
Montgomery	221	23	29.82	30.05	+ .01	81.2	— 1.0	96	30	90	68	11	72	24	70	77	3.47	— 0.8	13	4,002	ne.	36	nw.	1	11	9	11	5.4	107	1881	61	1892
Meridian	358	6	29.67	30.04	— .02	80.0	0.0	95	16	90	65	26	70	25	71	80	6.82	— 0.1	13	3,374	sw.	28	s.	23	2	19	10	6.6	98	1894	60	*
Vicksburg	254	24	29.76	30.02	— .03	81.0	— 0.9	95	19	89	69	1	73	21	72	79	2.46	— 1.7	13	4,437	sw.	25	sw.	24	19	10	2	3.2	100	*	62	*
New Orleans	54	25	30.01	30.07	+ .04	81.9	— 0.7	94	18	89	71	27	75	21	72	78	6.07	— 0.4	15	5,089	s.	36	ne.	9	17	9	5	3.8	99	1894	67	1894
Port Eads	.....	8	.....	.....	.....	82.7	+ 0.4	90	23	87	73	25	78	11	.....	.....	3.37	— 6.2	6	....•	w.	.....	.....	.....	2	24	5	.....	.....	.....	.....	.....
West Gulf States.						81.3	— 1.5										4.79	— 1.7													
Shreveport	249	24	29.75	30.01	— .01	81.4	— 2.3	96	17	90	68	8	73	22	73	80	4.33	+ 0.6	10	3,913	sw.	43	n.	8	8	10	13	6.1	107	1875	63	1894
Fort Smith	481	14	29.48	29.98	.00	77.4	— 4.1	96	19	87	61	9	68	27	72	82	14.99	+11.2	17	3,955	e.	42	n.	7	10	6	15	6.2	105	1894	56	1891
Little Rock	302	17	29.69	30.00	— .01	79.3	— 2.1	96	17	87	66	9	72	23	71	81	6.13	+ 2.7	14	4,169	sw.	60	nw.	7	11	12	8	5.6	103	1894	60	1891
Corpus Christi	20	9	29.90	30.01	— .01	82.6	— 0.8	89	22	87	76	25	77	12	77	86	0.00	— 2.0	0	11,040	se.	29	se.	6	9	22	0	4.4	98	1894	70	*
Galveston	42	25	30.01	30.05	+ .02	83.2	— 1.4	92	21	87	68	21	79	24	75	78	3.07	+ 0.1	8	7,440	sw.	26	ne.	19	22	9	0	2.0	97	*	67	1887
Palestine	510	14	29.50	30.03	.00	81.4	— 1.2	96	19	90	68	1	72	26	73	83	3.85	+ 1.0	7	4,368	s.	27	n.	21	9	19	3	4.9	103	1894	63	1894
San Antonio	704	17	29.27	29.90	— .01	84.7	+ 1.2	99	26	96	70	22	74	27	69	67	1.07	— 1.8	2	6,958	se.	44	n.	22	6	24	1	4.8	106	1894	58	1878
Ohio Val. & Tenn.						74.3	— 2.4										4.27	— 0.2													
Chattanooga	702	17	29.27	30.05	+ .01	76.2	— 2.5	91	18	84	62	10	68	24	67	78	6.71	+ 3.0	14	4,154	w.	36	sw.	24	7	16	8	5.7	101	1879	56	1885
Knoxville	980	25	29.03	30.04	— .01	75.5	— 1.1	94	18	84	60	3	67	26	67	79	4.50	— 0.1	10	3,230	w.	24	w.	15	9	12	10	5.6	100	*	52	1885
Memphis	399	25	29.61	30.03	+ .01	78.5	— 2.7	97	17	86	64	10	71	23	71	84	6.99	+ 3.8	22	5,331	e.	54	w.	8	9	9	13	6.0	99	*	58	1891
Nashville	545	25	29.46	30.02	+ .02	76.8	— 2.7	95	19	85	62	10	68	27	67	76	7.14	+ 2.8	15	4,105	nw.	27	nw.	15	10	12	9	5.1	101	*	56	*
Lexington	989	11	28.99	30.02	+ .01	73.4	— 2.3	94	19	82	52	31	65	24	62	73	5.07	— 0.1	14	6,364	sw.	40	n.	30	6	16	9	5.9	97	1892	51	1891
Louisville	525	24	29.47	30.02	+ .02	75.6	— 3.2	96	18	85	54	31	66	27	63	71	5.68	+ 1.8	11	4,325	s.	28	s.	6	10	10	11	5.4	102	*	54	*
Indianapolis	766	25	29.22	30.02	+ .01	74.2	— 2.1	94	16	85	49	31	64	29	60	67	2.87	— 2.0	13	3,764	s.	30	w.	17	8	14	9	5.3	101	*	48	1885
Cincinnati	628	25	29.36	30.02	+ .02	75.0	— 2.5	95	19	84	55	10	66	26	58	59	2.27	— 0.8	10	4,628	sw.	35	sw.	27	11	15	5	4.6	104	1881	53	1891
Columbus	824	18	29.15	30.00	.00	73.8	— 2.2	97	19	85	50	10	63	30	54	55	1.45	— 2.0	10	4,058	sw.	23	se.	15	5	21	5	5.4	103	1881	50	*
Pittsburg	842	25	29.13	30.01	+ .02	71.6	— 3.5	96	19	81	50	10	62	33	57	63	2.11	— 2.7	13	4,028	n	22	w.	27	7	17	7	5.1	103	1881	49	1894
Parkersburg	638	8	29.36	30.02	— .02	73.2	— 2.1	98	*	84	49	31	62	37	60	66	2.21	— 2.1	11	2,805	e.	26	sw.	15	11	11	9	5.4	98	1895	48	1894
Lower Lake Region.						69.1	— 2.7										1.90	— 0.4													
Buffalo	690	25	29.24	29.97	+ .02	68.0	— 1.3	90	19	75	52	10	61	33	57	68	1.85	— 1.5	10	6,488	nw.	35	w.	30	1	25	5	6.8	92	1887	48	*
Oswego	335	25	29.58	29.94	— .02	66.4	— 2.9	90	17	74	48	11	59	28	57	74	1.67	— 1.6	9	6,357	w.	32	w.	31	14	11	6	4.5	100	1878	45	1895
Rochester	523	24	29.42	29.97	+ .02	68.4	— 3.1	93	7	78	50	10	59	31	54	64	1.88	— 1.1	9	4,845	sw.	28	sw.	31	9	16	6	5.1	99	1894	46	1891
Erie	714	25	29.24	29.98	+ .01	67.7	— 4.1	91	19	75	50	10	61	32	56	67	2.59	— 0.3	9	6,284	sw.	29	sw.	8	15	11	5	4.2	94	*	47	1891
Cleveland	740	25	29.22	29.99	.00	69.0	— 2.5	94	19	77	48	10	61	31	56	63	1.18	— 2.7	7	7,613	n.	46	s.	21	8	16	7	5.0	97	1890	48	*
Sandusky	629	17	29.34	30.00	+ .01	71.6	— 2.9	98	19	80	52	10	64	29	57	62	1.48	— 1.7	6	5,508	s.	50	nw.	19	5	23	3	5.3	98	*	52	*
Toledo	674	25	29.29	29.99	+ .01	71.2	— 3.5	94	19	81	50	31	61	30	54	58	1.25	— 1.9	6	6,016	w.	42	nw.	19	12	10	9	4.7	99	1887	49	*
Detroit	794	25	29.23	29.98	.00	70.4	— 1.6	96	19	80	48	31	61	28	54	61	3.30	— 0.2	7	6,172	sw.	32	w.	19	10	16	5	5.0	101	1887	48	*
Upper Lake Region.						65.5	— 2.6										1.59	— 1.6													
Alpena	609	23	29.32	29.97	+ .02	62.6	— 2.7	84	8	72	45	10	53	30	51	68	0.52	— 2.7	6	6,031	nw.	33	w.	9	8	21	2	4.9	98	*	40	1891
Grand Haven	628	25	29.32	29.98	+ .01	67.3	— 2.4	89	18	77	47	10	58	33	54	64	1.70	— 1.3	7	6,007	nw.	48	sw.	16	14	15	2	3.8	92	1894	40	1873
Marquette	734	25	29.19	29.96	+ .01	62.7	— 3.3	86	5	72	43	1	54	29	53	71	1.13	— 2.0	16	6,423	nw.	29	s.	16	8	15	8	5.5	100	1878	38	*
Port Huron	639	21	29.32	30.00	+ .04	66.3	— 3.5	92	7	76	44	10	56	34	54	68	1.15	— 1.4	7	6,774	ne.	33	sw.	12	13	13	5	4.4	99	1887	44	*
Sault Ste. Marie	642	8	29.28	29.97	+ .01	60.4	— 1.7	84	5	72	40	10	49	35	51	76	1.34	— 1.6	8	5,736	nw.	34	nw.	31	14	12	5	4.5	94	1894	40	*
Chicago	594	25	29.14	29.99	+ .01	70.2	— 2.1	92	16	77	50	9	63	28	56	62	2.42	— 1.4	9	10,627	ne.	50	w.	18	14	17	9	3.7	100	1887	50	*
Milwaukee	673	25	29.29	30.00	+ .02	68.2	— 1.2	90	16	77	47	9	60	27	55	64	1.58	— 1.7	10	6,352	sw.	33	sw.	14	12	12	7	5.0	100	1887	47	1895
Green Bay	617	9	29.34	30.00	+ .02	67.9	— 1.8	92	7	80	43	9	56	36	53	61	1.44	— 1.8	5	5,152	sw.	34	sw.	24	4	21	6	5.4	98	1887	43	1895
Duluth	702	25	29.21	29.95	+ .03	62.4	— 4.3	89	6	70	45	2	55	31	54	75	3.03	— 0.9	14	6,343	ne.	36	sw.	7	10	18	3	4.5	99	1883	45	*
North Dakota.						66.2	— 2.4										2.76	— 0.1													
Moorhead	905	15	28.95	29.94	+ .03	65.4	— 2.4	92	5	76	44	17	54	31	56	74	3.05	— 1.2	10	6,642	s.	35	sw.	5	11	13	7	4.7	102	1894	39	1889
St. Vincent	794	15	29.10	29.93	+ .03	63.2	— 2.6	87	5	75	38	30	51	35	58	84	3.36	+ 0.7	12	4,844	se.	32	se.	14	16	8	7	4.1	100	1894	37	1891
Bismarck	1,681	21	28.30	29.93	+ .03	67.6	— 2.8	94	5	81	42	21	54	41	54	65	2.08	— 0.4	12	7,352	s.	52	s.	4	15	11	5	4.4	102	*	32	1884
Williston	1,875	17	27.95	29.88	.00	68.6	— 1.6	96	4	80	45	19	57	33	52	62	2.55	— 0.5	12	6,699	s.	48	w.	6	8	17	6	5.5	106	1886	38	1884
Upper Miss. Valley.						73.2	— 2.3										4.92	+ 1.2													
Minneapolis	.....	6	.....	.....	.....	70.6	— 1.2	94	5	82	48	9	60	37	.....	.....	4.37	— 0.6	3	.....	nw.	.....	.....	.....	9	17	5	....	100	1894	44	1891
St. Paul	850	25	29.09	29.98	+ .03	70.0	— 2.0	94	5	81	45	9	59	34	55	63	4.12	+ 0.8	4	4,690	se.	36	sw.	14	12	13	6	4.6	100	*	45	1895
La Crosse	720	23	29.24	29.99	+ .04	70.8	— 2.5	92	5	82	46	9	60	31	58	68	2.19	— 2.3	5	3,768	s.	36	w.	18	15	12	4	4.0	101	1874	46	1895
Davenport	613	24	29.34	29.97	— .02	73.4	— 1.8	96	7	84	52	9	63	34	58	63	5.16	+ 1.3	12	5,394	sw.	60	w.	7	5	20	6	5.6	100	1894	49	1891
Des Moines	869	17	29.09	29.99	+ .02	72.7	— 2.3	98	16	85	48	9	62	30	59	66	3.10	— 0.4	11	4,927	sw.	31	sw.	7	11	16	4	4.3	104	*	48	1895

TABLE I.—*Climatological data for Weather Bureau Stations, July*, 1895—Continued.

Stations.	Elevation above sea-level, feet.	Length of record, years.	Pressure, in inches.			Temperature of the air, in degrees Fahrenheit.								Humidity and precipitation.					Wind.					Clear days.	Partly cloudy days.	Cloudy days.	Average cloudiness, tenths.	Monthly temperature data since opening station.			
			Mean pressure, 8 a.m. and 8 p.m. +2.	Mean reduced.	Departure from normal.	Mean max. and min. +2.	Departure from normal.	Maximum.	Date.	Mean maximum.	Minimum.	Date.	Mean minimum.	Greatest daily range.	Mean temperature of the dew-point.	Mean relative humidity, per cent.	Precipitation, in inches.	Departure from normal.	Days with .01, or more.	Total movement, miles.	Prevailing direction.	Maximum velocity. Miles per hour.	Maximum velocity. Direction.	Maximum velocity. Date.					Absolute maximum.	Year.	Absolute minimum.	Year.
Up. Miss. Val.—Con																														
Dubuque	.....	23	.....	.....	.....	74.4	+ 0.1	98	7	86	40	9	62	37	.....	.....	3.00	— 1.9	7	.....	s.	.....	.....	...	15	6	10	....	101	*	40	1895
Keokuk	613	24	29.35	29.98	+ .01	73.8	— 3.4	96	16	84	54	31	64	31	60	66	5.46	+ 1.2	10	4,567	sw.	34	ne.	19	12	14	5	4.7	104	1890	50	1892
Cairo	359	25	29.63	30.00	+ .01	76.0	— 3.0	93	16	83	60	31	69	22	68	80	5.97	+ 2.3	16	4,504	s.	44	nw.	29	5	14	12	6.3	99	*	57	1891
Springfield, Ill	644	17	29.34	30.00	.00	73.4	— 3.8	94	16	83	54	31	64	28	60	68	5.53	+ 3.2	12	5,483	s.	32	sw.	27	9	15	7	4.9	102	1879	49	1891
Hannibal	534	....	29.43	29.99	.....	73.6	.....	95	16	82	53	11	65	33	64	74	8.01	+ 4.9	13	5,394	s.	36	w.	19	10	16	5	4.3	....	.....	.....	.....
St. Louis	571	25	29.43	30.02	+ .03	76.4	— 3.1	96	16	85	60	31	68	26	64	71	7.26	+ 3.8	11	6,614	s.	39	ne.	29	6	17	8	5.8	104	1881	55	1891
Missouri Valley.						73.5	— 2.6										4.73	+ 0.7													
Columbia	.....	6	.....	.....	.....	74.5	— 1.7	96	16	85	50	11	64	31	.....	.....	4.93	+ 0.1	11	3,838	se.	24	s.	14	6	9	16	6.6	105	1894	45	1892
Kansas City	963	8	29.01	30.00	+ .03	74.2	— 4.3	95	16	82	54	11	66	22	65	76	9.64	+ 5.8	10	5,694	ne.	38	n.	28	7	11	13	5.8	102	1890	54	*
Springfield, Mo	1,324	9	28.68	30.00	+ .02	73.0	— 5.0	91	16	80	55	9	66	22	67	84	7.86	+ 3.3	18	6,046	s.	36	ne.	27	5	13	13	6.2	99	1888	53	1891
Topeka	.....	9	.....	.....	.....	75.0	— 2.0	99	15	85	53	11	65	30	.....	.....	9.23	+ 4.4	12	.....	e.	.....	.....	...	7	23	1	....	104	1887	50	1891
Omaha	1,123	25	28.83	29.98	+ .01	74.3	— 2.8	99	16	84	50	9	64	29	59	64	1.38	— 3.9	8	5,096	se.	28	se.	28	11	13	7	5.1	106	1894	50	1895
Sioux City	1,165	7	28.75	29.95	+ .01	72.4	— 2.2	97	26	85	41	9	60	33	56	61	2.63	— 0.4	4	6,794	s.	48	nw.	29	9	18	4	4.8	107	1894	41	1895
Pierre§	1,470	21	28.39	29.90	— .01	73.4	— 1.7	99	28	87	50	9	60	41	54	58	0.90	— 1.6	7	8,004	e.	48	e.	6	14	15	2	4.1	110	1886	45	1885
Huron	1,310	15	28.58	29.93	— .01	71.2	— 1.0	101	15	86	43	9	56	49	52	58	1.63	— 2.3	6	9,908	se.	56	w.	14	7	22	2	4.5	108	1894	41	1891
Northern Slope.						67.0	— 3.1										1.13	— 0.6													
Havre	2,477	15	27.35	29.88	.00	65.5	— 2.4	95	3	79	36	20	52	40	50	62	2.24	0.0	11	5,479	w.	50	nw.	15	18	10	3	3.8	108	1886	31	1892
Miles City	2,374	18	27.45	29.85	.....	71.2	— 2.5	97	2	85	42	8	57	36	49	50	0.64	— 0.7	6	5,402	se.	43	nw.	6	18	10	3	3.8	109	1881	42	1895
Helena	4,108	16	25.87	29.96	+ .05	65.7	— 0.8	94	2	78	43	8	54	35	37	42	1.18	+ 0.2	7	6,063	sw.	36	sw.	6	18	9	4	3.3	103	1886	38	1880
Rapid City	3,260	10	26.63	29.89	— .02	70.0	— 0.7	96	4	83	47	10	57	37	48	43	0.39	— 1.8	4	7,587	s.	37	nw.	7	12	17	2	4.5	106	1881	37	1881
Cheyenne	6,105	25	24.12	29.93	+ .04	63.0	— 5.4	92	27	75	40	8	51	40	46	59	2.54	+ 0.7	10	7,007	s.	34	w.	25	6	16	9	5.5	100	1881	38	*
Lander‡	5,377	8	24.70	29.94	+ .02	63.6	— 5.8	91	27	79	36	7	48	44	38	48	0.19	— 0.8	6	3,225	sw.	42	sw.	3	10	17	4	4.7	99	1888	34	1882
North Platte	2,826	21	27.12	29.97	+ .04	69.9	— 4.1	96	28	81	47	9	59	39	58	70	1.08	— 1.8	7	5,959	se.	28	nw.	7	13	14	4	4.5	107	1877	42	1889
Middle Slope.						72.8	— 3.7										3.91	+ 1.3													
Denver	5,287	24	24.85	29.97	+ .10	67.4	— 5.4	95	27	79	45	10	56	34	46	56	4.28	+ 2.6	14	4,733	s.	36	sw.	17	10	12	9	5.1	102	1874	42	1873
Pueblo	4,734	8	25.34	29.97	.....	69.7	— 4.8	95	5	83	49	13	56	40	49	59	6.72	+ 4.7	14	4,895	nw.	34	n.	20	13	10	8	4.7	103	1888	49	1895
Concordia	1,410	11	28.53	29.96	+ .01	76.2	— 0.9	103	16	88	46	9	65	35	61	66	0.96	— 2.4	12	4,742	s.	23	sw.	26	9	16	6	4.8	104	1894	46	1895
Dodge City	2,504	21	27.41	29.93	+ .02	74.0	— 4.5	97	18	84	53	*	64	37	62	71	4.84	+ 1.8	9	7,757	s.	37	nw.	30	15	13	3	4.2	108	1876	50	1877
Wichita	1,351	8	28.56	29.95	+ .01	76.6	— 2.9	101	27	86	55	*	67	28	66	74	2.74	— 0.3	8	5,267	s.	37	n	7	11	13	7	4.6	104	1894	53	1892
Oklahoma	1,239	5	28.72	29.99	.....	78.3	.....	100	7	87	59	11	70	26	70	81	5.94	.....	10	5,719	s.	48	ne.	7	14	13	4	4.2	104	1894	56	1891
Southern Slope.						.....	.....										.....	.....													
Abilene	1,749	10	28.20	29.98	+ .02	79.5	— 3.9	98	6	88	62	11	70	24	66	70	4.63	+ 3.0	7	5,723	s.	34	ne.	8	10	13	8	5.2	110	1886	62	*
Amarillo	3,691	....	26.31	29.96	.....	72.5	.....	94	5	82	54	11	63	30	60	71	2.88	.....	12	10,956	s.	44	ne.	8	8	9	14	5.9	....	.....	.....	.....
Southern Plateau.						73.3	— 3.1										2.42	+ 0.7													
El Paso	3,767	18	26.20	29.89	+ .02	79.6	— 4.1	100	7	91	62	1	68	32	53	50	2.48	+ 0.2	11	6,982	ne.	44	nw.	10	9	16	6	4.7	112	1886	56	1880
Santa Fe	6,998	22	23.39	29.96	+ .02	66.2	— 3.0	87	7	77	48	12	56	29	38	49	4.78	+ 1.9	15	4,667	se.	37	sw.	10	8	17	6	5.2	96	1878	46	*
Tucson	2,390	....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Yuma	141	20	29.63	29.77	— .03	89.2	— 2.3	113	16	105	67	1	74	39	57	41	0.01	— 0.1	1	5,031	sw.	45	n.	21	27	4	0	1.4	118	1878	61	1879
Independence	3,884	....	25.97	29.82	.....	78.0	.....	99	25	91	54	31	65	34	28	18	T.	.....	0	6,114	se.	28	nw.	19	18	6	7	3.3	....	.....	.....	.....
Middle Plateau.						69.4	— 2.0										0.22	0.0													
Carson City	4,720	8	25.30	29.93	.....	66.6	— 1.1	89	24	82	42	25	51	43	33	32	0.00	— 0.1	0	.....	w.	.....	.....	...	31	0	0	1.1	100	1889	36	1888
Winnemucca	4,340	17	25.66	29.90	+ .05	68.9	— 2.0	94	23	84	43	6	53	46	22	21	0.25	+ 0.1	3	6,856	sw.	60	sw.	31	22	7	2	2.2	104	1877	37	1877
Salt Lake City	4,345	22	25.63	29.88	+ .01	72.6	— 2.9	95	24	85	52	6	60	36	41	35	0.42	— 0.1	5	4,464	se.	28	sw.	2	15	9	7	4.6	102	1889	45	1891
Northern Plateau.						67.1	— 2.5										0.30	— 0.2													
Baker City	3,430	7	26.46	29.91	+ .01	64.4	— 2.2	94	28	79	36	6	49	41	37	42	0.18	— 0.5	1	4,073	nw.	22	se.	4	21	6	4	2.2	101	1890	36	1895
Idaho Falls	4,742	6	25.26	29.91	.....	65.4	— 2.2	94	24	84	35	6	47	47	35	42	0.16	— 0.2	3	6,625	s.	38	sw.	5	18	10	3	3.8	99	1893	32	1893
Spokane	1,930	15	27.98	29.97	+ .05	67.4	— 1.6	93	23	80	47	6	55	35	40	44	0.42	— 0.3	5	4,726	sw.	30	sw.	4	12	11	8	5.0	102	1890	41	1887
Walla Walla	1,018	10	28.92	29.98	+ .04	71.2	— 4.0	104	23	85	48	7	58	39	45	44	0.50	+ 0.1	4	4,716	s.	29	n.	9	15	16	0	3.7	108	1891	45	1891
N. Pac. Coast Reg.						61.0	— 0.2										0.92	— 0.2													
East Clallam	.....	.....	.....	.....	.....	55.6	.....	93	9	64	40	*	47	42	.....	.....	1.24	.....	7	.....	w.	.....	.....	...	19	5	7	.....	.....	.....	.....	.....
Fort Canby	179	12	29.91	30.10	+ .04	59.9	+ 1.3	90	10	66	49	23	54	25	54	88	0.80	— 0.5	5	6,642	n.	42	se.	4	11	7	13	5.7	90	1895	46	1887
Neah Bay	....	10	.....	.....	.....	58.4	— 0.9	78	11	68	40	2	49	38	.....	.....	2.40	+ 0.4	6	.....	w.	.....	.....	...	11	9	11	....	80	1886	39	1888
Olympia	.....	19	.....	.....	.....	63.0	+ 0.5	92	*	80	39	3	46	47	.....	.....	0.35	— 0.5	2	.....	n.	.....	.....	...	14	15	2	....	97	1885	39	1895
Port Angeles	29	11	30.03	30.06	+ .03	56.8	+ 0.2	85	8	65	42	26	49	35	48	74	T.	— 0.5	0	5,057	w.	24	w.	15	12	8	11	5.1	88	1886	37	1887
Port Crescent	.....	.....	.....	.....	.....	57.4	.....	90	*	69	35	26	46	43	.....	.....	0.33	.....	2	.....	w.	.....	.....	...	12	18	1	.....	.....	.....	.....	.....
Pysht	.....	.....	.....	.....	.....	59.2	.....	86	9	71	39	2	47	36	.....	.....	0.79	.....	8	.....	w.	.....	.....	...	15	7	9	.....	.....	.....	.....	.....
Seattle	119	....	29.92	30.05	.....	63.6	.....	90	10	73	50	27	54	28	50	65	0.37	.....	4	3,507	n.	20	sw.	5	11	16	4	4.0	....	.....	.....	.....
Tatoosh Island	86	11	29.99	30.09	+ .02	56.0	— 0.2	73	10	61	46	26	52	18	51	86	2.19	— 0.1	9	6,015	sw.	32	e.	10	8	6	17	6.7	78	1891	36	1890
Astoria	.....	11	.....	.....	.....	62.0	+ 0.5	91	10	70	46	2	54	29	.....	.....	1.15	0.0	7	.....	w.	.....	.....	...	12	10	9	....	91	1895	44	1887
Portland, Oreg	157	24	29.88	30.05	+ .02	65.6	— 2.2	94	10	76	47	17	56	31	49	60	0.23	— 0.4	4	6,492	nw.	28	ne.	9	13	14	4	4.4	102	1891	46	*
Roseburg	523	19	29.43	29.99	— .05	66.0	— 0.5	98	10	79	43	3	53	41	49	62	0.27	— 0.2	2	3,627	nw.	24	n.	8	18	5	8	3.7	102	1891	40	*
Mid. Pac. C'st Reg.						64.1	— 0.5										0.17	0.0													
Eureka	64	9	29.97	30.06	— .03	56.0	+ 0.2	66	8	61	46	17	51	16	52	88	0.23	0.0	4	4,777	nw.	36	nw.	18	9	16	6	5.0	73	1888	43	1887
Red Bluff	334	19	29.55	29.89	+ .03	80.0	— 0.5	107	14	94	56	2	66	35	47	38	0.16	+ 0.1	2	4,382	se.	24	n.	6	27	2	2	1.1	112	*	53	1881
Sacramento	71	19	29.82	29.89	.00	71.4	— 1.8	98	14	86	51	31	57	39	54	63	0.04	0.0	1	7,446	sw.	24	sw.	3	27	3	1	1.4	106	1891	48	1887
San Francisco	153	25	29.81	29.97	+ .01	58.4	— 1.6	83	7	63	50	28	54	26	53	86	0.01	0.0	1	11,498	sw.	38	w.	26	11	17	3	4.9	93	1888	47	1893
Point Reyes Light	.....	7	.....	.....	.....	54.6	+ 1.1	76	7	62	44	*	48	29	.....	.....	0.40	+ 0.1	3	.....	nw.	.....	.....	...	5	7	19	....	84	1891	.....	.....
S. Pac. Coast Reg.						71.1	— 2.5										T.	0.0													
Fresno	332	8	29.50	29.84	— .02	79.4	— 2.8	107	16	96	53	31	62	40	41	35	T.	0.0	0	5,470	nw.	22	w.	16	28	3	0	1.2	114	1891	51	1891
Los Angeles	330	19	29.60	29.95	+ .01	68.4	— 2.4	85	6	79	54	31	58	28	58	80	T.	0.0	0	2,380	w.	14	w.	31	3	28	0	3.8	109	1891	49	1888
San Diego	69	24	29.88	29.96	+ .01	65.6	— 2.4	74	*	71	57	5	61	16	58	78	0.00	0.0	0	4,328	w.	16	nw.	19	27	2	2	3.1	88	1891	54	*
San Luis Obispo	201	....	29.76	29.98	.....	65.6	.....	93	6	78	44	4	53	38	52	71	0.00	.....	0	3,472	nw.	18	w.	5	16	13	2	3.7	....	.....	.....	.....

NOTE.—The data at stations having no departures are not used in computing the district averages. Letters of the alphabet denote number of days missing from the record.

* Two or more directions, dates, or years. † Received too late to be considered in departures, etc. ‡ Normals of temperature and precipitation and extremes of temperature combined with Fort Washakie records. § Normals of temperature and precipitation and extremes of temperature combined with Fort Sully records.

TABLE II.—*Meteorological record of voluntary and other cooperating observers, July, 1895.*

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
	°	°	°	*Ins.*	*Ins.*
Alabama.					
Alco	95	66	80.6	.....	
Ashville†	98	66	81.8	4.40	
Bermuda†	94	67	80.8	4.63	
Birmingham†	96[4]	70[4]	84.2[4]	6.10	
Brewton†	101	64	81.2	3.00	
Carrollton *†	89	68	79.2	2.96	
Citronelle†	93	71	80.6	9.23	
Claiborne Landing	.....	.....	.....	3.57	
Clanton†	93	65	79.0	5.09	
Collirene *[1]	93	74	83.0	2.03	
Cordova†	.....	.....	.....	5.95	
Daphne†	98	62	79.2	7.03	
Decatur†	95	58	76.4	6.99	
Demopolis†	.....	.....	.....	4.17	
Elba†	.....	.....	.....	5.79	
Eufaula *a†	98	69	82.2	3.77	
Eufaula *c†	.....	.....	.....	3.94	
Evergreen †	98	64	80.7	6.32	
Florence *a†	.....	.....	.....	6.95	
Florence *b†	92	61	77.4	5.88	
Fort Deposit†	96	68	81.6	4.46	
Gadsden†	94	63	77.8	3.66	
Goodwater† *	102	64	81.0	4.27	
Greensboro†	95	66	79.7	2.76	
Healing Springs†	92	62	77.2	6.15	
Highland Home†	94	67	80.0	2.73	
Jasper†	94	60	78.4	6.03	
Livingston†	98	66	81.6	3.45	
Lock No. 4	.....	.....	.....	7.24	
Madison Station†	94	63	78.3	4.98	
Maple Grove†	96	60	78.2	4.17	
Marion†	96	67	81.1	4.50	
Mount Willing†	95	60	80.2	2.93	
Newbern†	94	68	80.8	1.65	
Newburg *†	95	57	76.6	3.64	
Newton†	96	67	80.3	4.05	
Oneonto	.....	56	.....	5.74	
Opelika†	96	67	81.1	3.86	
Oxanna *†	93	64	76.6	4.11	
Pine Apple†	98	65	81.4	3.51	
Pushmataha†	95	67	81.2	5.72	
Rock Mills†	92	65	78.4	6.24	
Scottsboro†	95	58	76.7	8.71	
Selma†	.....	.....	.....	4.45	
Sturdevant†	.....	.....	.....	7.57	
Thomasville†	94	66	80.3	4.31	
Tuscaloosa†	98	64	81.3	6.58	
Tuscumbia†	96	66	79.2	6.33	
Union†	95	63	80.2	6.58	
Union Springs†	98	66	82.2	2.31	
Uniontown†	96	68	81.4	2.92	
Valley Head†	91	58	75.2	7.28	
Wetumpka	.....	.....	.....	3.10	
Wilsonville†	.....	.....	.....	5.68	
Alaska.					
Coal Harbor†	65	39	50.6	2.46	
Juneau	80	38	55.6	3.23	
Killisnoo†	73	38	54.2	3.35	
Arizona.					
Antelope Valley†	.....	.....	.....	1.63	
Benson *§	105	68	85.9	0.13	
Bisbee†	95	61	76.8	2.02	
Buckeye†	104	62	84.6	1.20	
Calabasas†	101	59	79.4	2.66	
Casa Grande *§	108	78	90.0	0.35	
Dragoon	.....	.....	.....	1.25	
Dragoon Summit *§	99	70	84.8	0.42	
Dudleyville†	105	60	83.4	0.98	
Eagle Pass *§	.....	64	76.4	1.41	
Farleys Camp†	105	65	86.0	0.41	
Flagstaff	88	44	65.6	0.00	
Fort Apache	96	48	72.4	0.74	
Fort Grant†	.....	60	.....	1.09	
Fort Huachuca	95	58	76.4	2.75	
Gila Bend *§	114	84	94.8	0.30	
Gisela†	109	57	82.0	0.63	
Globe†	106	61	83.6	0.43	
Holbrook†	99	47	74.0	0.85	
Keams Canyon†	94	43	68.0	0.97	
Maricopa *§	114	74	94.1	0.93	
Mount Huachuca†	94	60	76.4	1.97	
Natural Bridge†	.....	.....	.....	1.35	
Navajo *† §	.....	55	70.7	2.20	
Oracle†	96	65	80.7	2.12	
Oro	.....	.....	.....	3.44	
Oro Blanco	102	69	84.0	2.25	
Pantano *§	99	76	84.1	0.39	
Payson	.....	.....	.....	0.45	
Peoria†	112	68	90.1	0.00	
Pinal Ranch	.....	.....	.....	0.63	
Reymert	107	60	84.4	0.35	
San Carlos†	.....	.....	.....	0.32	
San Simon *§	105	79	90.8	0.37	
Show Low	.....	.....	.....	1.32	
Signal†	111	61	87.4	0.39	
Sulphur Spring Valley†	.....	.....	.....	1.94	
Texas Hill *§	115	76	95.7	0.00	
Arizona—Cont'd.					
Tucson *a*	105	67	88.0	0.07	
Tucson *c*†	106	63	86.2	0.11	
Walnut Ranch *†	94	60	73.6	5.51	
Wells *[1]	116	77	96.7	0.16	
Whipple Barracks†	100	47	71.4	0.88	
Wilgus†	.....	.....	.....	3.89	
Willcox *§	100	71	86.9	1.92	
Arkansas.					
Arkadelphia†	.....	.....	.....	5.09	
Arkansas City†	.....	.....	.....	4.55	
Bee Branch†	95	60	78.0	6.27	
Blanchard Springs†	97	63	79.6	1.99	
Brinkley†	98	64	80.4	7.00	
Camden *a*†	.....	.....	.....	4.22	
Camden *b*†	99	64	80.4	4.09	
Conway *[1]	90	66	78.0	4.89	
Corning†	99	56	77.7	4.32	
Dallas†	96	60	78.2	10.38	
Dardanelle†	.....	.....	.....	5.54	
Elon†	98	63	81.0	1.34	
Fayetteville†	93	56	76.0	11.70	
Forrest†	97	61	79.0	9.54	
Fulton†	.....	.....	.....	4.82	
Gaines Landing†	.....	.....	.....	5.62	
Helena *a*†	.....	.....	.....	5.25	
Helena *b*†	104	64	82.0	4.83	
Hot Springs *a*	97	65	80.2	9.52	
Hot Springs *b*	.....	.....	.....	10.76	
Hot Springs (near)	.....	.....	.....	10.50	
Keesees Ferry†	97	55	76.2	6.71	
Kirby†	93	.....	.....	7.30	
La Crosse†	94	59	76.2	5.62	
Lonoke *[1]	98	66	82.0	7.86	
Luna Landing *§	93	67	80.7	5.99	
Madding *§	.....	.....	80.2	4.43	
Malvern†	99	62	80.5	5.50	
Mossville	87	61	74.2	10.57	
Mount Ida†	98	64	79.8	7.81	
Mount Nebo†	91	63	77.5	7.35	
New Gascony *[1]	94	67	81.0	8.45	
Newport *a*†	.....	.....	.....	9.68	
Newport *b*†	100	62	78.6	10.25	
Newport *c*†	95	61	77.0	8.76	
Osceola†	94	60	77.3	8.55	
Ozark†	100	63	79.2	13.64	
Pine Bluff *†	98	62	80.6	4.23	
Pocahontas†	.....	.....	.....	10.52	
Prescott†	98	65	81.1	4.37	
Rison†	96	60	79.4	3.77	
Russellville†	96	65	79.8	8.96	
Searcy†	101	61	78.6	5.26	
Stuttgart†	98	62	80.4	7.02	
Texarkana†	99	68	82.4	6.42	
Washington†	92	66	79.1	4.66	
Wiggs	.....	.....	.....	12.91	
Winslow†	87	55	73.5	16.74	
Witts Springs	88[e]	55[e]	72.6[e]	11.57	
California.					
Adin	93	33	64.6	0.20	
Ager	102	46	73.8	0.62	
Agnew	94	42	63.2	0.00	
Arlington Heights	98	48	71.2	0.00	
Athlone *§	110	65	86.4	0.00	
Ballast Point L. H.	.....	.....	.....	0.00	
Bear Valley†	.....	.....	.....	0.04	
Berkeley	85	52	62.8	0.04	
Bishop†	100	46	72.1	0.12	
Bishop Creek *§	103	65	83.6	0.21	
Boca *§	94	36	60.1	0.00	
Bodie†	88	29	57.6	0.03	
Bowmans Dam†	.....	.....	.....	T.	
Borden *§	110	60	80.9	0.00	
Caliente *§	102	62	83.3	0.00	
Calloway Canal†	.....	.....	.....	0.00	
Cape Mendocino L. H.	.....	.....	.....	0.33	
Cedarville†	92	41	67.2	0.11	
Centerville *[1]	102	58	68.0	T.	
Chico *§	108	64	81.4	0.47	
Cisco *§	84	40	59.4	.....	
Claremont	93	48	69.6	0.00	
Cloverdale *[1]	102	52	74.5	0.17	
Colegrove	.....	.....	.....	0.00	
Corning *§	106	65	85.0	0.00	
Coronado	75	58	66.2	.....	
Crescent City†	86	41	58.4	0.77	
Crescent City L. H.	.....	.....	.....	0.92	
Davisville *b*	100	53	73.8	0.02	
Delano *§	103	65	84.2	0.00	
Delta *§	102	57	77.5	1.07	
Drytown	105	47	73.6	T.	
Dunnigan *§	104	64	78.2	0.04	
East Brother L. H.	.....	.....	.....	0.00	
Edgwood *§	96	50	72.4	0.66	
Edmanton *[1]	89	42	62.2	0.88	
Escondido	93	50	72.1	.....	
Evergreen	.....	.....	.....	0.00	
Fall Brook *[1]	95	52	67.6	0.00	
California—Cont'd.					
Folsom City *b* *[1]	104	62	76.7	T.	
Fordyce Dam	.....	.....	.....	0.60	
Fort Bragg†	79	41	57.9	0.40	
Fort Ross	.....	.....	.....	1.31	
Fort Tejon	.....	.....	.....	0.00	
Fremontville *[1]	90	58	66.8	0.00	
Georgetown†	95	70	72.0	0.03	
Glendora	.....	.....	.....	0.00	
Goshen *§	104	64	82.2	0.00	
Grass Valley	.....	.....	.....	0.25	
Greenville†	95	35	63.8	0.35	
Healdsburg *[1]	92	48	62.8	0.55	
Hendersons Ranch	.....	.....	.....	0.00	
Hollister	92	44	64.7	0.02	
Hueneme	.....	.....	.....	0.00	
Humboldt L. H.	.....	.....	.....	0.22	
Hydesville†	84	43	59.2	0.51	
Indio *§	114	76	94.7	0.00	
Iowa Hill *[1]	99	54	74.8	0.03	
Jackson	91	45	70.0	0.07	
Jolon	.....	.....	.....	0.00	
Julian†	102	46	72.0	T.	
Keeler *§	106	70	85.1	T.	
Keene *§	99	59	76.5	0.00	
Kennedy Gold Mine	98	48	72.8	0.00	
Kernville	.....	.....	.....	0.00	
King City *§	100	50	66.0	0.00	
Kingsburg *§	103	70	85.0	0.00	
Kono Tayee	96	50	74.2	0.00	
Lagrange *§	108	56	80.4	0.00	
La Porte *†	86	44	61.6	1.41	
Lemoore *a* *§	104	61	81.1	0.00	
Lick Observatory†	85	41	67.2	0.01	
Lime Kiln	108	53	80.8	0.00	
Lime Point L. H.	.....	.....	.....	0.00	
Lodi	99	49	71.4	0.00	
Los Alamos†	.....	.....	.....	0.00	
Los Gatos *b*	93	44	65.0	0.00	
McMullin *[1]	110	58	80.6	0.00	
Malakoff Mine *[1]	91	54	71.0	0.14	
Mammoth Tank *§	114	80	93.7	0.00	
Manzana	99	51	76.8	0.00	
Mare Island L. H.	.....	.....	.....	0.00	
Merced *§	106	59	76.2	0.00	
Middletown *†	104	50	71.6	0.10	
Mills College	.....	.....	.....	0.00	
Milton (near) *[1]	102	59	76.5	T.	
Modesto *§	101	58	78.1	0.00	
Mohave *§	108	68	84.3	0.00	
Mokelumne Hill *§	.....	55	75.6	0.00	
Monterey *§	76	52	58.8	0.00	
Mount Frazier	.....	.....	.....	0.00	
Mount Glenwood *[1]	102	62	78.7	0.09	
Mutah Flat	.....	.....	.....	0.00	
Napa *b*	93	51	67.4	0.03	
Needles†	113	69	93.0	T.	
Nevada City†	91	44	67.0	0.15	
Newcastle *a*†	100	48	73.8	0.04	
Newhall *§	101	58	73.7	0.00	
Nordhoff *†	96	58	64.6	0.00	
North Berkeley *[1]	79	53	61.8	0.09	
Oakland *a*	88	49	63.1	0.03	
Ogilby *§	117	85	96.6	0.00	
Oleta *[1]	95	55	69.6	T.	
Ontario *b*	97	61	75.2	0.00	
Orangevale†	105	52	75.7	T.	
Orland *§	109	60	84.6	0.27	
Ormonde†	.....	.....	.....	0.02	
Oroville *b*	104	50	78.6	0.33	
Palermo†	105	42	74.3	0.30	
Pasadena	90	51	69.1	0.00	
Paso Robles *b*	99	45	70.6	0.00	
Petaluma *[1]	98	54	66.6	0.08	
Piedras Blancas L. H.	.....	.....	.....	0.00	
Pigeon Point L. H.	.....	.....	.....	0.00	
Pilot Creek	.....	.....	.....	T.	
Placerville *b*	100	46	70.6	T.	
Point Ano Nuevo L. H.	.....	.....	.....	0.00	
Point Arena L. H.	.....	.....	.....	0.25	
Point Bonita L. H.	.....	.....	.....	0.00	
Point Conception L. H.	.....	.....	.....	0.00	
Point Fermin L. H.	.....	.....	.....	0.00	
Point George L. H.	.....	.....	.....	0.07	
Point Hueneme L. H.	.....	.....	.....	0.00	
Point Lobos	69	50	57.5	0.03	
Point Loma L. H.	.....	.....	.....	0.00	
Point Montara L. H.	.....	.....	.....	0.00	
Point Pinos L. H.	.....	.....	.....	0.05	
Point Reyes L. H.	.....	.....	.....	0.40	
Point Sur L. H.	.....	.....	.....	0.11	
Pomona (near)	104	50	75.0	0.00	
Portersville *§	106	70	84.9	0.00	
Poway *§	89	60	65.2	0.00	
Quincy†	92	39	65.2	0.37	
Ravenna *§	100	58	76.4	0.00	
Redding *b*†	101	55	79.2	0.93	
Redlands *a*	.....	.....	.....	0.00	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
California—Cont'd.	°	°	°	*Ins.*	*Ins.*
Reedley (near)*[1]	106	64	82.2	T.	
Represa	98	52	72.9	0.00	
Rio Vista	103	50	70.4	0.00	
Riverside†	102	52	74.8	T.	
Roe Island L. H	.....	.....	.....	0.00	
Rosewood	109	40	78.2	0.45	
Sacramento	100	50	72.6	0.03	
San Bernardino†	98	49	76.0	0.00	
San Jacinto†	100	45	71.8	T.	
San Jose*[b]	95	40	65.8	0.00	
San Leandro*[1]	92	58	64.2	0.08	
San Luis L. H	.....	.....	.....	0.00	
San Luis Obispo*[a]	.....	.....	.....	0.00	
San Mateo*[5]	92	53	65.0	0.00	
San Miguel*[5]	100	57	75.9	0.00	
San Miguel Island†	80	52	61.8	0.00	
Santa Ana*[5]	95	62	77.3	0.00	
Santa Barbara*[a]	79	54	65.0	T.	
Santa Barbara L. H	.....	.....	.....	0.00	
Santa Clara *a*[5]	90	50	69.8	0.00	
Santa Clara*[b]	101	41	64.8	0.00	
Santa Cruz*[b]†	91	45	64.1	0.00	
Santa Cruz L. H	.....	.....	.....	0.00	
Santa Maria	85[4]	50[d]	65.0[6]	T.	
Santa Monica*[5]	76	60	66.2	0.00	
Santa Paula*[b]†	77	45	61.4	0.00	
Santa Rosa*[5]	85	55	66.6	0.33	
Saticoy	.....	.....	.....	0.00	
Shasta	.....	.....	.....	1.12	
Shasta Springs	94	44	67.1	0.85	
Skye Valley	.....	.....	.....	0.00	
Sneddens Ranch	.....	.....	.....	0.00	
S. E. Farallone L. H	.....	.....	.....	0.00	
Stanford University	96	46	65.3	0.00	
Stockton *a*	99	52	71.3	0.00	
Summerdale†	.....	.....	.....	T.	
Susanville†	94	54	74.6	T.	
Sutter Creek*[5]	96	42	68.6	0.00	
Tecarte Dam*[4]	104	42	67.9	0.00	
Tehama*[5]	104	62	83.9	0.60	
Tejon Ranch	.....	.....	.....	0.00	
Templeton*[5]	104	52	68.3	0.00	
Trinidad L. H	.....	.....	.....	0.41	
Truckee*[5]	86	44	61.8	0.00	
Tulare *b*	.....	.....	.....	T.	
Tulare *c*	114	52	80.3	0.00	
Turlock*[b]†	109	43	75.6	T.	
Ukiah†	101	40	68.0	0.11	
Upper Lake	102	49	72.5	0.05	
Upper Mattole*[1]	94	42	64.0	0.86	
Vacaville*[a]	104	57	74.8	T.	
Ventura†	82	50	64.6	0.00	
Volcano Springs*[5]	121	87	103.2	0.00	
Walnut Creek	102	49	69.2	0.05	
Wenrich Ranch	.....	.....	.....	0.00	
West Point	.....	.....	.....	0.00	
Wheatland	104	51	75.5	0.05	
Williams*[c]	100	61	80.6	T.	
Willows*[b]	104	58	76.5	0.08	
Wilmington*[5]	84	64	73.6	0.00	
Wire Bridge*[4]	100	54	77.0	T.	
Yerba Buena L. H	.....	.....	.....	0.00	
Yreka†	99	41	68.2	0.43	
Yuba City*[5]	99	64	79.7	T.	
Colorado.					
Alma†	76	29	48.4	5.49	
Antlers†	100	41	68.9	1.66	
Arkins	.....	.....	.....	5.84	
Boxelder	.....	.....	.....	4.34	
Breckenridge†	85	26	52.6	2.43	
Byers*[1]	96	39	58.8	0.55	
Canyon†	96	45	68.3	3.80	
Capps	.....	.....	.....	3.00	
Castle Rock†	95	30	63.8	2.75	
Climax†	68	30	46.0	3.85	11.0
Collbran	.....	.....	.....	1.52	
Colorado Springs†	86	44	63.4	3.79	
Cope†	98	47	69.0	5.30	
Craig	.....	.....	.....	1.58	
Crook	103	42	72.6	2.25	
Deer Trail*[5]	95	40	69.8	2.70	
Delta†	100	45	73.2	1.16	
Divide Exper. Station	83	39	59.5	3.44	
Downing†	95	40	67.7	4.36	
Dumont†	86	40	60.9	3.75	
Durango†	86	41	65.9	1.78	
East Dale	.....	.....	.....	3.40	
First View*[5]	94	.....	68.9	6.12	
Fleming	.....	.....	.....	2.81	
Fort Collins†	93	45	65.3	3.75	
Fox	.....	.....	.....	6.72	
Garnett	.....	.....	.....	3.21	
Glen Eyrie†	88	42	62.0	4.46	
Gold Hill*[1]	86	38	59.2	4.51	
Grand Junction†	97	52	75.4	1.43	
Greeley†	96	42°	67.9	1.34	
Gulch	.....	.....	.....	3.36	
Gunnison†	82	38	61.4	1.86	
Holly	.....	.....	.....	6.51	
Holyoke *a*	.....	.....	.....	2.49	
Holyoke *b*	.....	.....	.....	2.65	
Hugo*[5]	96	50	72.4	3.30	
Hugo (near)†	85	45	63.6	4.07	
Julesburg†	101	48	69.6	1.63	
Kit Carson*[1]	98	40	74.0	5.42	
La Jara†	86	38	62.7	2.66	
Lake Moraine†	72	30	50.8	4.80	
Lamar†	102	52	71.8	7.99	
Laporte	.....	.....	.....	3.14	
Las Animas†	97	46	70.7	4.00	
Lay*[1]†	94	44	64.8	1.66	
Le Roy†	98	45	68.8	2.56	
Longmont†	97	45	67.1	4.31	
Longs Peak	79	32	54.0	4.61	
Loveland	.....	.....	.....	5.69	
Manhattan	.....	.....	.....	3.84	
Meeker†	93	34	63.3	2.13	
Millbrook†	84	34	58.2	3.05	
Minneapolis†	101	51	72.4	8.56	
Monte Vista	81	34	59.1	2.54	
Moraine†	82	27	56.5	3.66	
Ouray†	82	37	62.6	2.33	
Pagoda (near)	92	30	60.2	1.50	
Paonia†	.....	.....	.....	1.70	
Parachute†	94	48	71.0	1.58	
Pinkhamton	.....	.....	.....	1.00	
Rangely†	100	40	68.6	1.39	
Redcliff	.....	.....	.....	1.90	
Rico	.....	.....	.....	2.97	
Rocky Ford†	98	46	70.4	4.87	
Ruby†	.....	.....	.....	3.87	3.0
Saguache†	82	36°	62.8°	3.15	
St. Cloud†	.....	.....	.....	3.84	
San Juan†	80	21	52.2	3.77	
San Luis†	95	34	63.0	3.69	
Santa Clara*[1]†	87	45	60.1	5.90	
Seibert†	.....	.....	.....	5.59	
Smoky Hill Mine†	90	36	59.2	4.54	
Snyder	.....	.....	.....	5.62	
Springfield†	.....	.....	.....	7.43	
Stamford*[1]	78	34	52.7	6.50	
Steamboat Springs	90	21	56.7	0.75	
Sterling	.....	.....	.....	0.79	
Surface Creek†	87	42	66.1	1.28	
Thon†	98	40	65.7	3.71	
T. S. Ranch†	89	46	68.4	1.73	
Vernon†	97[b]	40[b]	67.5[b]	3.90	
Vilas	.....	.....	.....	5.49	
Wallet†	.....	.....	.....	7.36	
Watkins*[1]	96	43	69.1	.....	
Yuma	.....	.....	.....	3.22	
Connecticut.					
Bridgeport*[1]	90	37	69.2	4.86	
Canton†	94	42	67.6	3.94	
Colchester	87	48	66.9	4.11	
Falls Village	.....	.....	.....	3.00	
Greenfield Hill	.....	.....	.....	4.62	
Hartford *b*	.....	.....	.....	3.98	
Hartford *c*[f]	87	50	69.8	.....	
Lake Konomoc	.....	.....	.....	6.78	
Middletown	91	47	69.3	3.98	
North Franklin	.....	.....	.....	5.04	
North Grosvenor Dale	92	44	67.0	3.43	
Norwalk	90	47	67.6	4.68	
Southington*[1]	89	52	68.3	3.20	
South Manchester	.....	.....	.....	3.91	
Storrs	88	45	66.0	4.18	
Thompson*[1]	84	50	65.5	.....	
Voluntown†	87	41	67.0	6.37	
Wallingford†	.....	.....	[illegible]	4.50	
Waterbury	87	48	67.8	3.73	
West Simsbury	.....	.....	.....	3.68	
Windsor	91	48	68.2	5.29	
Delaware.					
Dover†	93	56	72.3	1.94	
Kirkwood*[2]	.....	.....	67.6	.....	
Milford	97	53	74.7	3.17	
Millsboro	97	55	72.9	3.73	
Newark	94	52	71.4	2.73	
Seaford†	95	54	72.0	3.89	
Wilmington†	100	55	75.0	2.70	
District of Columbia.					
Dist'ing Reservoir*[5]	90	57	73.0	4.01	
Receiving Reservoir*[5]	90	59	73.2	3.68	
West Washington	96	51	73.4	4.86	
Florida.					
Amelia†	94	70	80.5	4.74	
Archer†	95	69	81.4	9.84	
Avon Park†	97	71	83.0	5.81	
Brooksville†	92	70	80.0	12.33	
Clermont†	98	68	82.6	7.73	
Earnestville†	100	68	82.0	12.94	
Eustis†	96	70	81.9	7.26	
Federal Point†	98	69	80.6	7.66	
Fort Meade†	95	67	80.0	4.63	
Frostproof†*[c]	96	71	82.2	7.09	
Gainesville†	98	69	82.8	10.28	
Grasmere†	91	70	80.2	3.47	
Green Cove Springs†	92	61	76.7	9.45	
Homeland†	94	69	82.2	4.90	
Hypoluxo*†[1]	95	72	80.6	3.83	
Kissimmee†	97	70	83.2	7.36	
Lake City†	92	71	81.4	9.13	
Manatee†	96	61	78.4	6.08	
Merritts Island†	94	72	82.2	2.27	
Moseley Hall†	95	70	81.6	13.56	
Mullet Key†	94	75	83.7	5.39	
Myers†	92	71	80.9	6.46	
New Smyrna†	94	69	79.6	5.36	
Oak Hill*[1]	93	72	82.2	.....	
Ocala*†[1]	92	72	79.4	9.78	
Orange Park	96	69	81.6	6.73	
Orlando†	97	69	82.3	4.36	
Oxford*†[1]	92	70	79.6	9.11	
Plant City†	96	67	80.8	12.61	
St. Francis Barracks	93	71	80.7	4.08	
Tallahassee†	93	68	79.4	8.27	
Tarpon Springs†	88	71	79.4	6.18	
Georgia.					
Adairsville†	93	61	76.8	4.18	
Alapaha†	95	69	80.3	4.81	
Albany†	100	68	82.9	3.80	
Americus†	98	66	81.8	4.91	
Athens *a*	92	63	77.0	5.23	
Athens *b*†	96	61	79.2	4.28	
Bainbridge *a*†	100	69	82.4	9.13	
Bainbridge *b*†	.....	.....	.....	8.74	
Blakely*†[5]	97	69	79.9	11.91	
Brag†	98	62	81.3	2.95	
Camak†	94	62	78.8	8.54	
Canton†	.....	.....	.....	4.38	
Clayton†	95	51	71.8	6.91	
Columbus†	96	67	80.7	3.43	
Cordele†	96	66	81.3	5.70	
Covington	95	61	78.6	1.94	
Dahlonega†	90	57	73.6	2.63	
Diamond†	94	55	72.8	5.55	
Dublin*[b]†	.....	.....	.....	7.13	
Eastman†	98	63	79.9	4.13	
Elberton†	95	64	78.0	3.72	
Forsyth*[1]	92	70	79.9	5.96	
Fort Gaines†	96	67	82.2	3.45	
Gainesville†	91	58	75.8	4.63	
Gillsville†	94	62	77.2	3.79	
Griffin†	95	60	79.4	4.82	
Hawkinsville†	98	.....	.....	6.27	
Hephzibah	90	68	79.1	4.60	
Lagrange†	93	62	77.2	5.14	
Leverett†	97	61	79.4	2.20	
Louisville†	98	62	79.2	3.56	
Lumpkin†	97	70	81.0	3.65	
Macon *b*†	95	64	79.5	5.20	
Marietta†	90	62	75.2	4.19	
Marshallville†	93	70	81.4	6.93	
Milledgeville†	94	67	76.2	2.75	
Millen†	99	64	82.1	5.45	
Monticello*†[1]	92	63	80.6	4.30	
Morgan†	97	67	80.9	4.09	
Newnan†	95	64	78.6	5.22	
Point Peter*[1]	94	66	79.6	3.00	
Poulan†	96	65	80.8	4.84	
Quitman†	94	60	80.3	5.73	
Ramsey†	93	57	74.8	5.51	
Resaca†	.....	.....	.....	4.74	
Reynolds†	.....	.....	.....	6.49	
Rome†	93	62	77.0	7.57	
Talbotton†	96	62	77.0	7.53	
Thomasville†	96	68	81.4	5.16	
Toccoa†	95	60	77.0	2.23	
Union Point†	92	60	78.2	2.82	
Washington†	94	63	79.0	5.19	
Way Cross†	93	68	80.6	8.97	
Waynesboro†	95	64	80.2	3.55	
West Point†	96	65	80.4	4.73	
Whitesburg†	.....	.....	.....	4.36	
Idaho.					
American Falls†	99	38	68.1	0.82	
Atlanta†	.....	.....	.....	1.00	
Bannister†	.....	.....	.....	0.14	
Birch Creek†	92	36	65.4	0.06	
Bliss†	104	38	72.2	0.44	
Boise Barracks†	103	40	69.5	0.38	
Carriboo†	93	35	64.6	0.00	
Chesterfield†	98[f]	28°	60.1°	0.36	
Corral*†[1]	91	45	64.7	0.37	
Dairy†	100	48	67.2	0.30	
Fort Lemhi†	101	34	67.5	0.67	
Fort Sherman†	96	42	66.3	0.72	
Fraser†	93	40	64.0	1.55	
Gibbonsville†	93	31	64.1	1.26	
Grangeville	90	42	63.5	1.54	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Idaho—Cont'd.	°	°	°	*Ins.*	*Ins.*
Hailey†	97	34°	66.2°	0.10	
Idaho City†	98°	33°	66.0°	0.52	
Lake†	78	32	56.2	0.10	
Lewiston†	105	41	73.4	0.98	
Lost River†				0.52	
Martin†	89	32	61.4	0.55	
Moscow†	92	41	65.0	0.90	
Murray†	93	39	66.8	1.45	
Nampa	102	40	69.2	0.31	
Oakley†	97	39	68.5	0.22	
Orchard†				0.32	
Paris†	95	35	62.2	0.80	
Payette†	105	40	70.8	0.36	
St. Anthony	94	23	62.8	0.48	
Salubria†	105	35	70.6	0.36	
Soldier†	95	31	64.8	0.45	
Swan Valley†	96	28	62.8	0.60	
Three Creek†	100	30	65.1	0.10	
Warren†	90	29	58.0	1.60	
Illinois.					
Albion†	93	50	75.6	6.21	
Alexander†	96	49	75.3	6.55	
Altamont				5.02	
Anna†				6.52	
Ashton*†	95	55	70.6	3.74	
Atlanta				6.71	
Atwood*‡	92	46	69.0	4.25	
Aurora†	99	45	71.6	3.83	
Beardstown†				3.89	
Bloomington†	100	43	73.4	6.71	
Bushnell†	98	51	74.8	6.28	
Cambridge	96	52	72.6	7.40	
Carlinville†	94	52	74.6	5.58	
Carlyle				10.42	
Catlin†	94			3.65	
Chemung*‡	96	43	73.0	2.91	
Chester†				5.93	
Cisne*†§	100	52	76.1	4.51	
Clear Creek†	103	41	71.9	9.66	
Coatsburg				5.88	
Cordova†				5.12	
Decatur†	92	50	73.6	3.42	
Dixon†	99	48	72.8	4.59	
Duquoin*‡	99	59	79.0	5.26	
East Peoria†	102	47	73.6	8.15	
Effingham†	94	54	75.2	1.70	
Evanston*‖	90	58	69.8		
Fort Sheridan†	92	47	68.8	3.50	
Frederick	94			5.25	
Galva†	99	49	72.7	5.58	
Gilman†	96	47	73.2	5.09	
Golconda	95	61	78.0	9.03	
Grafton†				7.51	
Greenville†	96	50	75.6	6.97	
Griggsville†	95	55	73.8	6.25	
Halliday*§	98[4]	66[4]	81.4[4]	5.23	
Havana†	95	55	75.1	4.89	
Herrins Prairie*‡	94	60	77.5	3.75	
Hillsboro*†‡	98	55	76.8	6.31	
Holts	99	54	75.8	4.40	
Joliet†	100	47	73.5	4.32	
Jordans Grove†	94	52	74.9	3.75	
Kankakee†	88	51	68.2	2.53	
Knoxville*‖	100	52	74.5	8.81	
La Harpe*‡	100	48	76.0	4.89	
Lanark*†‡	99	41	71.4	4.28	
Lexington*†‡	93	57	72.4	9.16	
Loami				6.93	
Louisville†	92	51	73.4	5.20	
McLeansboro*†§		59	78.4	7.11	
Martinsville†	94	47	73.9	4.71	
Mascoutah*§	100	60	78.8	4.80	
Mattoon*‡	96	55	72.3	3.37	
Monmouth†	99	46	71.2	5.50	
Mount Carmel†				5.77	
Mount Pulaski	92	50	73.2	4.30	
Mount Vernon	95	52	76.0	5.94	
New Burnside†	98	52	77.0	5.51	
Olney *a*‡	94	50	76.6	5.85	
Olney *b*‡	100	55	74.4	6.64	
Oswego*‡	97	45	70.5	3.61	
Ottawa†	102	46	72.8	4.79	
Palestine†	95	50	75.5	7.04	
Paris†	100°	45°	73.8°	2.95	
Peoria *a*†				8.14	
Peoria *b*	98	54	75.9	8.72	
Philo†	96	44	72.2	3.01	
Rantoul*†§	98	46	75.6	7.47	
Riley†	96	45	70.2	3.43	
Rockford†	99	52	76.1	2.53	
Rose Hill				7.72	
Rushville	100	52	75.4	5.53	
St. Charles*‡	104	50	72.0	2.55	
St. John*†§	97	64	80.4	5.07	
Streator	98	53	76.7	6.00	
Sycamore*†‡	90	49	69.7	3.10	
Tampico	98	46	75.7	8.28	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Illinois—Cont'd.	°	°	°	*Ins.*	*Ins.*
Tiskilwa*‡	98	63	75.3	7.89	
Tuscola*†‡	93	56	72.2	2.26	
Walnut†	100	48	74.5	5.41	
Warsaw†				4.29	
Wheaton	96	45	71.9	3.47	
Winnebago†	98	44	70.8	3.89	
Ozark†	97	44	71.4	4.77	
Indiana.					
Anderson†	94	42	72.0	0.81	
Angola*‡	104	45	74.7	2.08	
Ashboro†	93	43	72.8	3.43	
Butlerville†	97	44	72.8	2.59	
Cambridge City†	96	44	71.2	0.42	
Columbia City*‡	92	48	72.7	2.15	
Columbus†	94	45	71.7	3.26	
Connersville†	96	47	72.4	0.24	
Degonia Springs*§	92	55	75.3	7.86	
Delphi	94	44	72.0	2.68	
Edwardsville*†‡	91	55	75.0	6.18	
Evansville†	96	50	75.8	6.24	
Farmland†	93	44	71.3	0.96	
Hammond†	96	45	69.8	2.46	
Huntingburg†	94	50	72.9	5.51	
Huntington	93	45	72.2	1.66	
Jasper†	96	50	74.8	5.57	
Jeffersonville	95	52	74.7	6.68	
Kokomo†°	96	45	74.2	2.12	
Laconia	96	53	75.8	6.35	
Lafayette†	94	43	72.8	3.06	
Logansport *a*†				5.28	
Logansport *b*	95	48	74.2	2.94	
Lyford†	97	44	73.3	3.79	
Madison†	96	50	74.4	2.73	
Marengo*‡	93	54	75.1	7.60	
Marion†	97	44	73.4	0.80	
Mauzy†	97	44	73.2	0.35	
Mount Vernon†	95	55	76.4	9.17	
Princeton*†‡	97	51	75.2	7.60	
Rockville†	95	48	71.9	3.73	
Scottsburg‖	92*	57	73.3	5.07	
Seymour†	96	50	74.8	2.82	
South Bend†	95	44	71.7	1.59	
Sunman	94	50	73.3	1.36	
Terre Haute†	93	51	75.0	4.20	
Topeka†	96	48	76.6	2.04	
Valparaiso†	93	50	71.8	4.71	
Vevay	97	50	76.3	1.42	
Vincennes†	100	46	75.1	8.27	
Worthington†	92	48	72.8	3.61	
Indian Territory.					
Eufaula†				6.70	
Healdton†	101	62	80.8	7.00	
Kemp†				11.75	
Lehigh†	97	62	80.1	9.52	
Purcell†	100	60	81.8	4.08	
Tulsa†				10.30	
Vinita†	90	60	76.2	4.67	
Iowa.					
Afton	98	51	73.1	3.54	
Algona*‡	95	55	71.0	3.18	
Alta†	94	44	71.2	1.55	
Amana†	100	48	72.9	6.46	
Ames *b*	94	39	70.2	2.70	
Ames *c*				2.87	
Atlantic†	103	37	71.0	0.92	
Atlantic (near)	98	44	73.0	1.50	
Audubon	96	41	71.5	1.71	
Belknap	97	51	72.7	5.43	
Belle Plaine	104	47	73.3	4.27	
Bonaparte†	99	49	74.4	5.27	
Carroll	94	40	71.3	2.47	
Cedar Falls†	95	45	73.3	1.86	
Cedar Rapids†	97	51	74.0	3.22	
Centerville	97	50	74.0	6.51	
Chariton	94	52	73.2	4.33	
Charles City†	95	44	72.4	1.77	
Clarinda†	92	46	70.2	6.44	
Clinton	99	49	73.6	4.69	
College Springs	96	45	71.4	8.64	
Corning†	94	45	70.5	2.71	
Cresco†	93	41	69.2	4.37	
Decorah†	94	42	69.6	1.07	
Delaware*§	101	48	71.3	2.70	
Denison†	99	39	70.4	1.95	
Elkader†	99	39	71.6	1.81	
Emmetsburg	96	40	70.9	1.21	
Estherville°	97	46	72.6	1.51	
Fairfield†	97	47	72.4	4.60	
Fayette	96	40	71.5	2.67	
Forest City	98	38	72.8	2.63	
Fort Madison*†‡	93	59	76.7	5.51	
Galva†	95	37	71.9	2.47	
Garden Grove	96	42	71.4	4.79	
Glenwood†	102	48	74.5	2.26	
Grand Meadow*‡	90	48	69.3	1.73	
Greenfield†	98	43	73.0	1.85	
Grundy Center	95	44	71.1	4.92	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Iowa—Cont'd.	°	°	°	*Ins.*	*Ins.*
Guthrie Center	98	40	71.1	2.64	
Hampton	94	40	70.4	3.54	
Hawkeye				1.43	
Hopeville†	93	45	71.3	3.55	
Humboldt†	98	37	74.2	1.96	
Independence†	101	44	71.1	1.17	
Iowa City†	100	51	74.0	10.10	
Iowa Falls†	95	36	69.6	3.79	
Jefferson	95	40	70.8	2.00	
Keosauqua†	96	51	74.0	5.31	
Knoxville	97	48	72.6	3.68	
Larrabee†	96	36	71.9	2.41	
Le Claire†				4.81	
Lenox*‡	95	56	72.2	3.87	
Logan†	99	35	71.6	1.68	
Madrid	96	40	72.6	2.38	
Maple Valley				1.24	
Marshall†°	96	46	71.5		
Mason City†	95	39	70.3	2.01	
Maxon*‡	100	60	75.1	4.33	
Mechanicsville	96	45	71.5	3.34	
Monticello†	94	46	70.4	2.43	
Mooar	98	43	75.0	2.80	
Mount Ayr†	97	45	72.6	7.21	
Mount Pleasant*‡	94	42	76.8	5.58	
Neola	104	35	72.7	0.45	
Newton†	98	50	72.4	5.22	
North McGregor†				1.19	
Ogden	96	40	69.5	3.48	
Osage*†§		53	69.4	2.14	
Oskaloosa†	97	45	72.7	4.87	
Ottumwa	98	50	74.0	5.16	
Ovid†	95	45	72.2	3.19	
Panama†	96	44	70.7	2.03	
Primghar	94	40	70.9	1.76	
Rock Rapids	96	32	71.2	2.10	
Sac City†	97	42	72.0	1.95	
Seymour†	91	46	72.3	3.59	
Sibley	91[4]	37	68.8[4]	1.13	
Sidney	104	48	73.6	5.22	
Spirit Lake†	101	40	73.4	1.59	
Sutherland	95	37	70.7	2.22	
Toledo*‡	100	46	73.7	2.70	
Villisca†	94	41	70.6	5.68	
Vinton*‡	102	51	72.3	2.16	
Washington†	98	48	72.5	4.59	
Waterloo	100	44	73.1	1.03	
Waukee	98	42	73.2	3.46	
West Bend*†‡	96	49	71.1	3.03	
What Cheer				4.60	
Williams	90	36	69.5	4.62	
Wilton Junction†	100	45	73.1	9.10	
Winterset	98	42	71.5	5.11	
Kansas.					
Abilene†	106	48	78.1	2.70	
Achilles*§	100	52	69.7	4.91	
Altoona*†§	99	56	76.6	5.12	
Atchison†	98	49	73.6	7.37	
Beloit†	102	47	75.2	8.37	
Blaine	101	48	76.4	3.83	
Burlington†	102	51	75.4	2.40	
Campbell[4]	104	47	77.0	1.67	
Colby†	98	44	70.5	5.87	
Coldwater†	102	52	76.4	4.83	
Collyer*§	102	55	76.3	2.50	
Columbus†	96	55	76.1	11.03	
Coolidge†	98	50	72.6	7.28	
Cunningham†	104	48	76.7	2.70	
Downs				3.27	
Dresden*†‡	101	50	71.6	7.68	
Ellinwood*§	99	48	71.9	2.73	
Emporia†	100	54	75.8	2.60	
Englewood†	102	48	76.4	4.11	
Eureka†				2.04	
Eureka Ranch†	103	42	74.0	3.28	
Fort Riley†	98			5.22	
Fort Scott				12.17	
Frankfort	105	50	78.9	3.09	
Garden City†	99	47	73.0	6.93	
Garfield				2.21	
Gibson*‡	96	46	70.3	5.98	
Girard*‡	99	62	76.5	5.73	
Goodland	96	40	69.3	5.51	
Gove*†‡	104	52	72.8	6.14	
Grainfield*§	100	54	71.6	4.50	
Grenola*‡	100[4]	59	77.4	4.20	
Grinnell*§	104	44	75.6		
Halstead	96	50	72.9	6.00	
Haviland	101	48	75.6	3.45	
Horton†	98	49	75.0	2.82	
Hutchinson†	99	50	73.8	8.55	
Independence	108	56	78.7	3.51	
Ionia†	98	53	74.0	5.87	
Jaqua†	100	48	69.1	5.90	
Johnson†	105	52	73.3	7.60	
Lawrence*‡	96	52	74.0	10.06	
Lebo†	104	52	75.6	4.35	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Kansas—Cont'd.	°	°	°	*Ins.*	*Ins.*
Leoti†	103	50	73.8	4.66	
Macksville†	105	45	76.0	3.26	
McPherson†	97	52	75.1	8.63	
Manhattan *b*	105	48	77.8	6.51	
Manhattan *c* *[3]	105	48	72.6	6.50	
Meade†	105	55	77.9	6.48	
Medicine Lodge	95	54	74.8	4.31	
Minneapolis†	103	49	76.3	3.35	
Morland†	97	44	70.6	5.40	
Morton†	105	52	75.2	12.31	
Mount Hope*[1]	100	59	76.6	4.25	
Ness City†	99	55	76.7	6.51	
New England Ranch†	103	43	73.4	4.14	
Norton†	96	42	69.9	2.99	
Oberlin†	.....	.....	.....	6.08	
Olathe†	99	50	74.7	6.03	
Oswego†	100	54	77.0	7.55	
Ottawa†	95	53	76.9	10.31	
Phillipsburg†	104	52	74.6	4.35	
Pleasant Dale	106	44	75.6	2.28	
Quinter*[1]	102	50	73.7	.....	
Rome*†	101	55	76.6	3.51	
Russell	112	44	77.1	1.67	
Salina†	98	.....	.....	4.90	
Scott City	104	50	74.2	6.11	
Sedan†	104	58	78.2	6.15	
Sharon Springs*[1]	100	54	69.3	6.25	
Tribune†	.....	.....	.....	7.52	
Ulysses	.....	.....	.....	5.48	
Wakefield*[1]	104	60	77.8	7.17	
Wallace*[1]	100	53	76.4	6.48	
Wamego*[1]	100	54	76.4	5.36	
Wellington	.....	.....	.....	2.31	
Winfield*[5]	110	54	80.8	2.85	
Winona*[5]	100	54	76.4	8.25	
Yates Center†	.....	58	.....	1.86	
Kentucky.					
Alpha†	98	56	75.0	7.46	
Blandville†	92	57	74.7	5.61	
Bowling Green *a*[1]	95	52	72.8	9.46	
Bowling Green *b*†	98	55	77.0	9.95	
Burnside†	.....	.....	.....	7.71	
Caddo†	97	59	77.0	4.30	
Canton*†	96	60	76.3	5.41	
Carrollton†	99	49	75.5	2.74	
Catlettsburg†	.....	.....	.....	3.97	
Cromwell†	.....	.....	.....	5.73	
Earlington	.....	.....	.....	9.14	
Edmonton†	92	56	73.8	5.35	
Elizabethtown†	97	52	73.8	4.01	
Eubank†	97	51	74.0	4.31	
Falmouth†	.....	.....	.....	4.06	
Fords Ferry†	99	56	77.5	7.01	
Frankfort†	97	56	75.3	5.22	
Franklin*†	98	64	79.4	6.72	
Georgetown *b*	94	52	73.5	.....	
Greendale*[1]	93	55	73.1	3.64	
Greensburg*†	94	58	73.1	4.85	
Harrods Creek†	96	54	75.4	7.12	
Henderson†	96	56	76.3	8.85	
Louisa†	99	54	74.2	6.83	
Marrowbone†	95	57	76.6	6.61	
Matlock*[1]	96[d]	60°	77.7[1]	6.31	
Middlesboro†	.....	.....	.....	4.94	
Mount Sterling†	98	52	72.4	6.96	
Paducah *a*†	.....	.....	.....	6.32	
Paducah *b*†	99	59	78.8	5.27	
Pleasure Ridge Park†	94	50	73.3	7.13	
Princeton†	99	50	75.4	4.36	
Pryorsburg†	91	61	77.9	5.75	
Russellville†	95	58	76.4	8.91	
Sandy Hook†	95	50	75.2	6.22	
Shelby City*[1]	96	53	72.3	3.71	
Shelbyville†	98	50	74.4	4.51	
South Fork†[2]	.....	.....	71.4	5.67	
Springfield†	95	50	73.6	5.57	
Williamsburg†	.....	.....	.....	6.67	
Louisiana.					
Abbeville	94	68	80.8	11.53	
Alexandria†	97	67	81.1	8.52	
Amite†	99	68	82.0	7.94	
Ashwood	95	68	82.0	5.01	
Bastrop†	95[d]	66[d]	80.4[d]	2.29	
Baton Rouge†	98	70	83.0	2.65	
Calhoun†	99	70	81.7	3.55	
Cameron	98	69	84.0	4.70	
Cheneyville†	98	68	81.8	6.82	
Clinton†	98	70	82.0	7.78	
Coushatta *a*†	.....	.....	.....	6.44	
Coushatta *b*†	97	66	81.8	4.93	
Covington†	97	68	81.2	8.35	
Davis†	96	63	79.4	7.88	
Delhi†	.....	.....	.....	5.78	
Donaldsonville†	97	69	81.8	5.67	
Emilie†	96	70	81.8	7.41	
Farmerville	96	66	81.4	2.88	
Franklin†	97	69	81.8	11.27	
Grand Coteau	94	70	81.0	7.62	
Hammond†	97°	69	81.5	5.16	
Houma†	98	67	82.2	12.45	
Jeanerette†	98	63°	81.0°	5.10	
Lafayette†	98	68	82.6	6.59	
Lake Charles†	98	70	82.7	7.88	
Lake Providence†	97	68	81.9	1.95	
Lawrence†	100	73	84.8	9.50	
Liberty Hill	101	66	80.5	5.61	
Maurepas	100	68	83.2	6.76	
Melville†	97	68	81.4	7.15	
Minden†	100	68	82.2	2.76	
Monroe†	98	68	83.0	3.94	
Natchitoches†	97	68	81.6	4.28	
New Iberia	95	68	81.5	5.75	
Oak Ridge†	103	65	82.6	3.07	
Oberlin	97	67	81.5	6.50	
Opelousas†	97	69	81.9	6.49	
Oxford†	92	63	79.2	4.07	
Paincourtville†	98	68	81.7	7.16	
Plain Dealing	94	70	80.7	9.36	
Rayne†	99	68	82.3	7.34	
Schriever†	98	66	82.2	11.82	
Shell Beach	97	72	83.4	6.11	
Southern University†	92	70	80.7	11.15	
Sugar Ex. Station†	98	71	83.5	7.62	
Sugartown†	95	70	80.6	5.86	
Thibodeaux	.....	.....	.....	9.85	
Toledo	98	.....	.....	3.08	
Wallace	96	68	81.6	7.63	
West End	.....	.....	.....	8.80	
White Sulphur Springs†	.....	.....	.....	8.78	
Maine.					
Bar Harbor	89	45	64.2	1.79	
Belfast*[6]	79	57	65.5	1.94	
Calais†	85	49	65.4	2.75	
Cornish*[1]	90	52	66.8	4.18	
Fairfield	88	43	66.4	3.08	
Farmington†	96	41	69.8	1.05	
Gardiner	95	50	69.3	4.55	
Houlton†	93	40	66.6	2.43	
Kineo†	86	50	64.8	4.07	
Lewiston	96	50	68.0	2.22	
Madison*[1]	92	50	67.9	4.50	
Mayfield	89	44	64.7	4.44	
North Bridgton	92	49	67.7	2.74	
Orono†	89	43	65.1	2.85	
Petit Menan*[1]	75	50	61.1	.....	
West Jonesport*[1]	78	50	60.4	.....	
Maryland.					
Bachmans Valley*[1]	98	58	72.4	2.77	
Boettcherville*[1]	96	48	70.1	3.10	
Charlotte Hall†	94	58	73.4	3.25	
Cherryfields†[2]	.....	.....	73.2	7.68	
Chestertown†	90	55	72.0	3.45	
College Park	99	50	71.1	2.27	
Cumberland *a*†	92	50	70.3	2.49	
Cumberland *b*	97	55	74.8	2.85	
Darlington†	93	52	70.5	4.74	
Deer Park	89	32	62.3	3.55	
Denton†	95	52	71.0	2.59	
Easton†	93	54	72.0	4.32	
Ellicott City	89	59	72.8	0.81	
Fallston*[1]	91	58	70.8	2.47	
Frederick *a*	96	50	71.6	3.22	
Garrison	93	47	69.8	3.55	
Glyndon	96	50	71.6	1.73	
Grantsville	88	41	64.0	4.68	
Great Falls*[5]	92	58	73.4	2.63	
Green Spring Furnace	100	46	71.2	2.18	
Hagerstown†	98	49	71.0	2.46	
Hancock	95	48	70.2	3.76	
Jewell†	91	54	71.6	3.23	
Johns Hopkins Hospital	95	55	72.8	.....	
La Plata†	98	52	73.8	2.65	
Laurel	94	49	71.2	2.90	
McDonogh	92	56	71.6	.....	
Mardela Springs†[1]	93*	54	72.3	6.53	
Mt. St. Marys College	92[1]	51	72.6*	2.98	
Oakland†	88	38	63.3	4.02	
Oldtown	.....	.....	.....	3.09	
Pocomoke City	96	55	75.4	2.86	
Popes Creek	98	50	76.8	2.20	
Princess Anne	92	55	73.7	4.25	
Sharpsburg	96	49	71.2	2.38	
Solomons†	94	57	75.8	3.58	
Sunnyside	90	39	63.4	4.21	
Upper Marlboro†	96	51	72.0	3.72	
Western Port	102	41	70.3	1.99	
Massachusetts.					
Adams	90	42	65.6	.....	
Amherst	89	45	66.1	3.38	
Amherst Ex. Station *b*	90	46	67.6	3.89	
Andover	87	46	66.5	2.04	
Ashland	.....	.....	.....	4.91	
Bedford	85	47	66.6	2.77	
Beverly Farms	78	46	64.3	4.40	
Blue Hill (summit)	90	50	66.7	3.35	
Blue Hill (valley)	90	42	66.7	3.21	
Boston *a*	.....	.....	.....	3.42	
Brockton *a*	92	49	68.5	4.54	
Brockton *b*	.....	.....	.....	5.02	
Brockton *c*	.....	.....	.....	4.55	
Cambridge *a*	90	47	68.8	3.35	
Cambridge *b*	87	53	69.5	3.28	
Chestnut Hill	93	48	69.0	3.55	
Clinton	.....	.....	.....	1.90	
Concord†	92	45	67.0	3.70	
Dudley	87	50	66.2	2.40	
East Templeton*[1]	90	53	66.7	2.02	
Egg Rock, Nahant	79	54	66.1	.....	
Fall River	85	53	68.6	3.38	
Fiskdale	.....	.....	.....	5.15	
Fitchburg *a*[1]	87	56	67.0	6.26	
Fitchburg *b*	87	45	66.7	2.92	
Framingham	93	44	67.2	5.17	
Gilbertville†	.....	.....	.....	5.06	
Groton	87	44	66.3	3.42	
Hadley	95	44	66.8	4.04	
Hingham	.....	.....	.....	4.99	
Hobbs Brook	.....	.....	.....	4.68	
Hyannis	88	56	71.7	2.85	
Hyde Park*[3]	.....	56	67.1	.....	
Lake Cochituate	96	40	66.8	5.34	
Lawrence	92	52	69.7	3.21	
Leeds	90	44	67.2	4.40	
Leominster	.....	.....	.....	3.50	
Long Plain*[6]	84	50	67.8	3.23	
Lowell *a*	92	50	69.0	2.66	
Lowell *b*	91	48	68.1	.....	
Lowell *c*	93	50	69.2	.....	
Ludlow Center	85	40	64.0	6.35	
Lynn *a*	82	48	65.6	3.14	
Lynn *b*	85	52	68.7	.....	
Mansfield*[1]	92	54	67.8	3.94	
Middleboro	88	43	66.6	1.88	
Milton	87	47	66.4	3.48	
Monroe	85	41	62.7	3.66	
Monson	89	42	66.2	3.20	
Mount Nonotuck	.....	.....	.....	5.00	
Mount Wachusett	.....	.....	.....	3.26	
Mystic Lake	.....	.....	.....	4.66	
Mystic Station	.....	.....	.....	4.04	
Natick*[1]	90	55	67.9	3.34	
New Bedford *a*	84	51	67.2	4.91	
New Bedford *b*	86	49	67.1	4.84	
North Billerica	97	50	69.8	1.53	
Pittsfield	84	39	65.0	4.34	
Plymouth	.....	.....	.....	3.58	
Provincetown	86	53	68.6	.....	
Roberts Dam	.....	.....	.....	3.83	
Salem	.....	.....	.....	3.76	
Salisbury	.....	.....	.....	3.51	
Somerset	.....	.....	.....	3.41	
Springfield Armory	91	48	67.3	4.56	
Taunton *c*	87	44	66.4	3.56	
Taunton *d*	91	50	67.9	2.35	
Turners Falls	86	48	67.8	4.55	
Wakefield†	89	46	67.4	4.81	
Waltham	.....	.....	.....	4.04	
Webster	.....	.....	.....	5.40	
Westboro†	93	44	68.6	4.20	
Williamstown	90	47	67.1	2.37	
Winchendon	.....	.....	.....	4.58	
Winchester	.....	.....	.....	4.03	
Winthrop	85	42	67.2	2.13	
Worcester *b*	87	50	67.9	4.10	
Michigan.					
Adrian	100	42	71.6	0.65	
Allegan	97	41	71.0	0.50	
Alma	96	39	67.4	0.38	
Ann Arbor	94	48	70.6	2.27	
Arbela	.....	.....	.....	0.45	
Ball Mountain	94	40	67.2	2.18	
Battle Creek	97	45	71.1	1.21	
Berlin*[1]	101	47	68.1	1.73	
Berrien Springs*[1]	97	50	72.3	1.85	
Birmingham	97	43	69.8	0.57	
Bois Blanc*[10]	84	50	65.3	.....	
Boon	93	38	64.4	0.94	
Calumet	84	42	61.5	0.79	
Charlevoix	82	47	63.6	1.00	
Cheboygan	91	37	62.7	1.07	
Climax	.....	.....	.....	1.04	
Clinton	98	44	70.6	1.21	
Crisps*[10]	89	42	60.1	.....	
Escanaba	87	48*	68.2	0.44	
Fairview	94	40	69.3	1.88	
Fitchburg	99	41	69.8	2.87	
Flint	97	38	67.1	1.20	
Grand Point au Sable*[10]	88	45	66.1	.....	
Grand Rapids	98	47	72.2	1.01	
Grape	94	50	72.4	2.08	
Grayling	95	35	64.6	0.32	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Michigan—Cont'd.	°	°	°	*Ins.*	*Ins.*
Grindstone City *10	94	44	63.5	.....	
Hammonds Bay *10	96	50	68.2	.....	
Hanover	92	48	69.5	2.21	
Harbor Springs	86	41	64.2	0.46	
Harrisville	89	42	63.2	1.13	
Hart	.....	.....	.....	0.40	
Hastings	93	45	69.6	1.84	
Hayes	64	40	69.4	2.15	
Hesperia	95	44	70.4	0.33	
Holland *10	82	50	67.9	.....	
Howell	98	41	69.0	0.87	
Ivan	95	42	66.6	0.33	
Jeddo	95	43	66.4	1.93	
Kalamazoo	94	46	71.8	1.09	
Lansing	94	47	69.3	1.72	
Lathrop *1	93	48	64.0	0.66	
Lewiston	96	42	66.6	0.78	
Ludington *10	90	50	66.0	.....	
Madison	97	47	71.5	0.99	
Manistee *10	86	52	64.4	.....	
Mayville	98a	44a	69.0a	2.12	
Middle Island *10	90	44	64.9	.....	
Mottville	97	42	71.4	2.30	
Muskallongee Lake *10	84	42	58.6	.....	
North Manitou Island *10	89	51	65.6	.....	
North Marshall	94	40	69.2	1.81	
Northport	86	42	65.0	0.30	
Old Mission	92	43	67.6	0.51	
Olivet	92	49	71.2	1.78	
Ottawa Point *10	87	50	66.2	.....	
Ovid	98	43	70.0	1.18	
Parkville	.....	.....	.....	2.06	
Pentwater *10	84	44	67.2	.....	
Point aux Barques *10	95	50	68.2	.....	
Pontiac	93	42	68.4	2.64	
Rockland 4	90	41	62.9	1.50	
St. Ignace	84	40	62.2	0.87	
St. Johns	98	47	71.0	2.70	
Sand Beach a	93	40	64.5	1.02	
Sand Beach b *10	86	51	63.3	.....	
Ship Canal *10	102	42	64.4	.....	
Stanton	96	43	68.6	1.08	
Sturgeon Point *10	91	37	64.3	.....	
Thornville	96	46	70.0	0.82	
Thunder Bay Island *10	86	52	63.2	.....	
Two Heart River *10	90	40	59.4	.....	
Vandalia	92b	45b	70.1b	0.88	
Vermillion Point *10	80	35	54.2	.....	
Ypsilanti	93	41	68.0	2.61	
Minnesota.					
Ada †	95	40	65.2	3.40	
Albert Leat	92	42	69.8	3.18	
Alexandria a †	.....	.....	.....	2.14	
Beardsley †	98	36	67.5	2.36	
Belleplaine	.....	.....	.....	2.10	
Bird Island	96	38	69.3	1.38	
Blooming Prairie †	95	40	68.4	2.60	
Bonniwell †	102	42	70.4	1.42	
Caledonia †	94	41	69.2	3.14	
Cambridge †	91	43	67.0	5.99	
Camden †	94	43	69.6	2.74	
Campbell	99	39	66.7	2.69	
Clear Lake †	94	41	68.0	3.07	
Clear Water *1	98	47	66.5	2.38	
Collegeville	97	48	71.0	1.90	
Crookston †	89	44	66.1	4.62	
Dawson *1	102	41	70.7	1.36	
Farmington †	94	41	67.8	3.43	
Fergus Falls †	93	44	67.2	4.93	
Glencoe †	94	34	68.2	.....	
Grand Meadow †	98	37	70.0	3.55	
Grand Portage †	89	40	55.6	2.25	
Granite Falls	99	36	70.0	1.75	
Hutchinson †	97	40	70.0	0.95	
Koochiching	89	38	63.0	2.60	
Lake Winnibigoshish *1	85	50	63.8	4.13	
Lawrence †	94	45	66.2	4.45	
Leech Lake 1	89a	41	63.0	4.96	
Long Prairie †	96	41	68.4	5.45	
Luverne †	91	38	68.2	2.20	
Maple Plain	99	41	69.6	2.84	
Mazeppa 3	100a	40	70.1	2.15	
Milan †	98	36	70.4	1.47	
Minneapolis a †	100	44	70.2	4.15	
Minneapolis b 1	93a	40	69.7	4.17	
Minnesota City †	97	38	66.4	3.11	
Montevideo †	97	40	70.4	1.41	
Mount Iron †	88	36	61.2	8.36	
Morris †	95	40	69.1	2.00	
Myrna *1	100	60	75.2	.....	
New London	96	42	69.6	1.41	
New Richland *1 4	92	48	70.0	.....	
New Ulm †	98	40	72.7	4.78	
Park Rapids †	91	39	65.0	3.91	
Pine River *1	88	51	65.3	2.52	
Pleasant Mounds †	94	38	69.6	2.81	
Pokegama Falls 1	90a	39	62.6	3.65	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Minnesota—Cont'd.	°	°	°	*Ins.*	*Ins.*
Red Lake †	94	36	64.5	3.50	
Redwing †	.....	.....	.....	3.60	
Reeds Landing	.....	.....	.....	6.42	
Rolling Green †	94	40	69.6	1.80	
St. Charles †	100	38	69.4	3.63	
St. Cloud	90	46	67.6	3.16	
St. Olaf	92	46	66.8	4.47	
St. Peter †	98	36	71.0	5.74	
Sandy Lake Dam 1	90a	39	64.6	3.08	
Sauk Center	98	40	68.0	2.06	
Shakopee 6	96a	43	71.6	3.36	
Sunrise City *5	92	46	68.9	.....	
Tower †	87	37	61.6	3.33	
Two Harbors †	85	40	62.4	3.18	
Wabasha *1	100	51	69.0	5.71	
Willmar †	93	39	68.0	4.74	
Winona	94	48	70.8	2.67	
Worthington	91	41	68.0	0.87	
Zumbrota *1	93	50	69.2	.....	
Mississippi.					
Aberdeen †	104	63	81.5	3.55	
Agricultural College	95	65	79.8	2.54	
Batesville †	96	62	79.6	6.64	
Biloxi †	92	70	81.8	3.57	
Briers †	93	68	80.6	5.51	
Brookhaven †	100	64	82.4	6.45	
Canton †	96	68	81.2	4.45	
Clarksdale	.....	.....	.....	5.26	
Columbus a †	.....	.....	.....	1.83	
Columbus b †	105	64	83.2	1.69	
Corinth †	98	50	74.2	8.94	
Crystal Springs †	98	64	80.8	3.03	
Duck Hill †	95	63	79.4	5.58	
Edwards	98	67	82.6	2.10	
Enterprise †	95	62	79.8	5.02	
Fayette †	99	59	80.8	5.22	
French Camps †	98	58	78.4	2.66	
Fulton †	96	62	79.8	3.59	
Greenville a	95	68	78.6	4.61	
Greenville b †	100	62	80.7	4.30	
Hattiesburg †	100	61	80.0	2.81	
Haziehurst †	99	66	81.8	3.62	
Hernando †	96	63	79.2	3.83	
Holly Springs †	94	62	78.2	9.02	
Itta Bena †	97	66	79.7	3.23	
Jackson †	98	65	82.1	3.10	
Kosciusko †	96	63	80.2	2.08	
Lake †	94	65	79.8	5.23	
Leaf *1	94	70	79.9	.....	
Leakesville †	97	67	82.0	11.70	
Leonia †	100	63	81.2	5.81	
Logtown †	95	70	81.4	9.61	
Louisville †	98	60	78.6	2.79	
Macon †	100	65	82.6	4.66	
Magnolia †	.....	.....	.....	12.29	
Mayersville	95	65	80.7	6.02	
Moss Point †	96	70	83.2	8.45	
Natchez †	97	67	81.1	5.50	
Okolona †	100	61	80.8	1.82	
Pontotoc †	96	63	79.3	3.81	
Port Gibson †	98	66	81.8	4.03	
Stonington *1	96	72	81.8	.....	
Thornton †	94	68	81.8	4.14	
Topton *5	92	70	81.5	6.15	
University	96	61	78.9	2.13	
Valden	102	60	82.2	2.56	
Water Valley †	.....	.....	.....	4.40	
Waynesboro a †	95	64	80.2	4.45	
Waynesboro b †	99	66	81.8	4.74	
Woodville †	98	67	82.1	6.43	
Yazoo City †	101	65	83.6	4.63	
Missouri.					
Akron	.....	.....	.....	6.45	
Appleton City †	98	54	75.7	5.75	
Arthur *2	.....	60	73.1	8.82	
Bagnell †	.....	.....	.....	15.03	
Bethany	98	47	74.1	4.23	
Birch Tree	98	56	74.5	14.51	
Bluffton *1	94	62	77.5	8.56	
Boonville †	.....	.....	.....	6.97	
Brunswick	93	55	76.3	6.13	
Carrollton †	95	54	73.8	7.41	
Conception	92	48	72.7	5.75	
Cowgill *3	94	52	75.5	6.26	
Darksville †	98	53	73.8	6.88	
Downing	.....	.....	.....	7.28	
East Lynne *2	.....	57	71.4	8.92	
Edgehill *3	92	60	73.0	4.36	
Eight Mile *1	93	55	72.4	7.52	
Eldon *1	94	54	72.7	10.76	
Elmira	99a	46a	73.2a	6.52	
Emma *3	.....	60	76.8	6.35	
Fairport	.....	.....	.....	6.62	
Farmersville	.....	.....	.....	5.31	
Fayette	95	52	74.2	6.16	
Fulton	.....	.....	.....	8.50	
Gallatin *1	100	51	73.3	4.87	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Missouri—Cont'd.	°	°	°	*Ins.*	*Ins.*
Gayoso *3	.....	62	76.9	5.85	
Glasgow	96	52	73.7	5.63	
Gordonville *3	.....	60	74.0	5.29	
Gorin *3	98	55	74.1	4.33	
Grove Dale	.....	.....	.....	7.87	
Half Way	93	52	74.0	6.25	
Harrisonville †	95	54	73.2	9.13	
Hastain	101	52	75.3	5.75	
Hermann †	.....	.....	.....	7.90	
Houston	95	54	75.1	8.89	
Houstonia (near)	.....	.....	.....	4.26	
Humansville	96	50	75.8	5.61	
Ironton *1	91	58	72.4	5.45	
Jefferson City †	98	54	75.6	8.90	
Kidder	97	49	73.6	5.41	
Lamar	93	55	75.6	7.26	
Lamonte	.....	.....	.....	4.05	
Langdon †	102	45	73.4	3.16	
Lebanon	91	57	73.4	7.70	
Lexington †	94	53	73.2	5.09	
Liberty	100	50	76.0	5.42	
Louisiana Bridge †	.....	.....	.....	9.22	
McCune *1	95	55	73.8	13.29	
Marble Hill	96	50	75.1	8.03	
Marceline	.....	.....	.....	4.81	
Marshall †	97	49	.....	4.73	
Maryville *4	100	50	70.2	3.76	
Mexico †	98	51	74.8	8.01	
Miami	.....	.....	.....	6.39	
Mine La Motte †	90	55	73.1	4.37	
Mineral Springs	90	54	73.8	9.48	
Mount Vernon	95	50	74.1	5.81	
Neosho	101	53	76.7	8.06	
Nevada	.....	.....	.....	7.25	
New Haven *1	96	58	74.2	5.61	
New Madrid	98	60	78.0	8.50	
New Palestine	.....	.....	.....	6.10	
Oakfield †	96	55	75.0a	6.28	
Oak Ridge *4	98	60	76.0a	5.95	
Olden †	96	52	75.5	6.90	
Oregon a	98	50	75.1	2.96	
Oregon b	98	48	73.4	2.92	
Osceola †	.....	.....	.....	6.40	
Oto	.....	.....	.....	9.05	
Palmyra *5	98	60	77.8	7.70	
Phillipsburg *1	92	57	73.1	7.75	
Pickering *3	105	48	70.3	5.92	
Pierce City *1	98	62	75.7	7.05	
Platte River *3	92	52	72.8	8.69	
Poplar Bluff	95	56	75.8	6.40	
Potosi	96	49	73.2	7.29	
Princeton *1	101	47	73.6	7.56	
St. Charles	94	54	74.8	7.59	
St. Joseph †	.....	.....	.....	6.53	
St. Louis	94	52	73.5	8.01	
Sarcoxie *3	101	62	74.8	7.50	
Shelbina	.....	.....	.....	9.50	
Steffenville	.....	.....	.....	6.54	
Stellada †	95	52	73.2	6.63	
Sublett	94	48	72.5	11.47	
Trenton *3	.....	52	69.7	4.64	
Unionville †	100	52	75.0	4.09	
Vermont *1	94	59	73.1	5.64	
Versailles	.....	.....	.....	7.28	
Vilas	.....	.....	.....	4.12	
Virgil City	.....	.....	.....	5.58	
Warrensburg *1	96	62	75.1	3.55	
Warrenton	96	54	74.1	6.71	
Wheatland	.....	.....	.....	5.96	
Willow Springs	97	52	74.8	6.46	
Montana.					
Big Timber	95	37	67.7	0.50	
Billings †	101	42	70.0	0.51	
Boulder †	89	37	62.0	0.74	
Bozeman †	90	40	64.2	0.97	
Butte †	87	36	61.0	1.07	
Choteau †	96	41	64.6	1.04	
Cokedale †	95	32	63.2	0.76	
Columbia Falls †	93	37	62.9	1.94	
Fort Benton †	98	36	65.4	2.56	
Fort Custer †	101	44	70.8	0.60	
Fort Keogh †	99	38	70.0	0.27	
Fort Logan †	92	31	60.1	1.08	
Fort Missoula	91	39	62.8	1.51	
Glasgow †	101	37	72.6	0.40	
Glendive	105	45	72.6	1.84	
Grantsdale	105	39	65.4	0.80	
Great Falls †	94	38	66.6	0.76	
Hogan †	95	34	63.0	1.04	
Kipp	91	33	60.2	2.18	
Libby †	107	33	68.0	0.71	
Manhattan †	95	33	62.6	0.53	
Martinsdale †	100	34	63.8	1.38	
Marysville †	87	39	61.7	0.65	
Musselshell †	108	35	70.2	0.08	
Poplar †	103	38	70.7	1.01	
Sun River †	92	37	63.7	1.43	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean	Precipitation. Rain and melted snow.	Total depth of snow.
Montana—Cont'd.	°	°	°	*Ins.*	*Ins.*
Troy†	100	35	67.8	1.73	
Utica†	101	34	63.8	1.31	
Virginia City†	89	36	62.8	1.00	
White Sulphur Springs†	90	32	58.6	0.70	
Wibaux†	101	42	69.6	2.23	
Yale†	98	35	62.6	0.33	
Nebraska.					
Agee*[1]	97	48	73.1	0.85	
Albion†	100	.....	.....	0.00	
Alliance	.....	.....	.....	1.26	
Amelia*[1]	108	52	74.5	0.78	
Ansley†	100	37	71.0	1.08	
Arapaho	.....	.....	.....	2.74	
Arborville*[1]	104	51	73.8	1.45	
Arcadia	102[f]	45[f]	72.6[f]	0.90	
Ashland *a*†	104	49	73.8	2.00	
Ashland *b*[1]	101	54	79.4	2.02	
Ashton	101	38	74.2	0.62	
Auburn*†	108	46	75.1	2.43	
Aurora*[1]	100	50	74.4	1.95	
Bancroft	.....	.....	.....	0.76	
Bassett	100	39	70.6	0.55	
Beatrice†	105	42	75.9	3.04	
Beaver City	96	42	72.0	4.63	
Benkelman*[1]	102	40	77.8	3.44	
Blue Hill*[1]	100	55	73.8	2.89	
Bratton*[1]	104	52	75.4	2.88	
Broken Bow*[1]	100	50	76.6	1.05	
Burchard*[1]	100	60	77.9	1.61	
Burwell*[1]	94	46	76.8	1.14	
Callaway†	99	40	72.3	0.38	
Central City*[5]	98	57	77.9	2.89	
Chadron*[1]	120	48	73.4	.....	
Chester*[1]	103	55	75.6	1.44	
Columbus†	97	41	71.2	0.88	
Cornlea	.....	.....	.....	1.22	
Cortland*[1]	103	54	75.0	1.38	
Creighton	97	36	71.2	0.95	
Crete	102	44	75.3	1.23	
Culbertson	.....	.....	.....	3.96	
Curtis *a*†	101	48	74.3	2.73	
David City*†[1]	99	52	73.2	0.55	
Divide*[1]	100	56	74.2	0.96	
Dunning*[1]	100	43	74.0	0.33	
Edgar*[1]	106	58	79.1	1.70	
Elba	.....	.....	.....	0.45	
Ericson*†[1]	101	56	78.4	0.80	
Ewing†	.....	.....	.....	0.04	
Fairbury	.....	.....	.....	2.52	
Fairmont*[1]	98	56	76.4	1.48	
Fontanelle	100	42	74.2	0.32	
Fort Robinson	101	43	68.9	0.50	
Franklin†	.....	45	.....	2.65	
Geneva†	101	41	74.8	2.53	
Genoa†	101	43	74.9	0.88	
Gering†	102	48	70.2	1.63	
Gothenburg	103	46	74.2	1.14	
Grand Island*[1]	107	55	76.9	2.83	
Greeley	.....	.....	.....	0.75	
Haigler*[1]	99	50	71.1	5.80	
Hartington†	94	38	70.6	2.33	
Harvard*[1]	100	59	75.0	2.78	
Hastings*[1]	94	48	69.8	3.21	
Hayes Center†	.....	.....	.....	3.34	
Hay Springs†	105	37	69.3	0.72	
Hebron†	103	47	75.2	1.40	
Hickman*[1]	104	58	79.6	1.32	
Holdredge *a*	.....	.....	.....	2.50	
Imperial *a*†	100	45	70.8	3.63	
Imperial *b*[1]	96	48	73.4	3.29	
Indianola*[5]	100	52	74.0	5.12	
Kearney*[1]	102	56	75.4	2.30	
Kennedy*†[1]	108	42	70.7	1.61	
Kimball†	96	45	67.8	1.62	
Lexington†	.....	.....	.....	1.86	
Lincoln	102	49	74.8	1.05	
Lodgepole†	106	46	67.2	1.29	
Lynch*†[1]	100	55	74.7	1.23	
Lyons	.....	.....	.....	1.08	
McCook*[1]	95	58	72.7	3.80	
Madison*[1]	98	58	76.7	0.40	
Madrid*†[5]	97	50	71.3	1.55	
Marquette*	100	53	.....	2.83	
Mason City	.....	.....	.....	1.80	
Minden*[1]	98	50	71.2	3.67	
Nebraska City *a*†[1]	100	50	71.0	3.10	
Nebraska City *b*[1]	102	52	73.7	4.02	
Nemaha City*[1]	101	55	75.8	3.59	
Nesbit†	104	46	77.9	0.81	
Norfolk†	94	42	73.9	0.72	
North Loup†	100	40	72.2	0.72	
Oakdale†	99	38	71.8	0.38	
Odell*[5]	102	60	76.7	0.97	
Omaha*[1]	98	56	75.8	1.55	
O'Neill*[1]	96	52	72.5	0.86	
Ord	.....	.....	.....	1.14	
Ough†	.....	.....	.....	5.75	
Nebraska—Cont'd.	°	°	°	*Ins.*	*Ins.*
Palmer *a*[1]	106	42	74.2	1.25	
Palmer *b*	.....	.....	.....	1.05	
Plattsmouth *a*†	.....	.....	.....	2.28	
Plattsmouth *b*[1]	103	59	79.8	2.26	
Potter*[1]	96	46	70.3	2.03	
Ravenna *a*	101	38	70.4	1.16	
Ravenna *b*[1]	95	44	74.2	1.10	
Red Cloud *a*	.....	.....	.....	4.30	
Red Cloud *b*[1]	102	58	76.5	4.42	
Republican	.....	.....	.....	3.30	
Rulo*[1]	102	58	77.4	5.26	
St. Paul*[1]	98	44	73.4	1.63	
Salem*[1]	100	50	76.0	2.81	
Santee Agency†	100	44	74.8	1.89	
Schuyler	.....	.....	.....	0.79	
Seneca*[1]	102	49	72.7	0.34	
Seward*[5]	98	57	74.8	2.26	
Spencer (near)	.....	.....	.....	1.76	
Springfield	100	50	74.2	2.57	
Springview	102	38	71.2	1.32	
Stanton*[1]	98	50	72.0	1.72	
State Farm	105	41	75.0	0.91	
Strang	.....	.....	.....	1.95	
Superior*[5]	100	60	78.4	2.39	
Sutton	.....	.....	.....	4.70	
Syracuse	.....	.....	.....	1.80	
Tecumseh†	104	42	74.0	3.13	
Tekamah	100	41	72.6	3.38	
Thedford*[1]	102	53	77.2	0.60	
Turlington†	110	45	74.6	2.76	
Wakefield	.....	.....	.....	2.33	
Weeping Water*[1]	103	42	69.4	2.32	
Weston*[5]	103	58	78.7	0.61	
Whitman	.....	.....	.....	0.90	
Wilber*[1]	104	50	76.0	1.36	
Wilcox	.....	.....	.....	4.58	
Wilsonville*[1]	104	56	78.4	3.39	
York*[1]	104	56	77.6	1.87	
Nevada.					
Austin	89	42	65.7	T.	
Battle Mountain*[1]	97	58	71.2	0.15	
Belmont	91	44	66.2	T.	
Beowawe*[1]	96	57	73.4	0.00	
Candelaria	99	49	74.6	T.	
Carlin*[1]	95	40	62.8	T.	
Carson City	92	39	64.9	T.	
Clover Valley†	.....	.....	.....	0.10	
Cortez†	.....	.....	.....	T.	
Cranes Ranch	.....	.....	.....	T.	
Darrough Ranch	.....	.....	.....	0.00	
Downeyville	106	54	78.6	T.	
Elko*[5]	98	50	72.0	0.00	
Elko (near)	101	35	65.5	T.	
Ely	93	39	64.6	0.27	
Empire Ranch†	110	53	80.4	0.01	
Fenelon*[1]	97	44	66.2	0.00	
Genoa	86	42	63.8	0.00	
Golconda*[1]	100	56	72.3	0.00	
Halleck*[1]	101	49	67.3	T.	
Hamilton	99	32	66.7	0.04	
Hawthorne *a*[5]	92	60	75.1	0.00	
Hawthorne *b*	98	45	72.2	0.00	
Hot Springs*[1]	101	50	75.9	T.	
Humboldt*[1]	98	48	69.5	T.	
Las Vegas	100	54	78.1	T.	
Lewers Ranch	92	40	67.0	T.	
Lovelock*[1]	100	60	76.4	0.00	
Marlette Lake†	.....	.....	.....	T.	
Mill City*[1]	104	52	71.0	.....	
Osceola†	94	47	71.6	0.12	
Palisade*[1]	100	50	70.9	0.00	
Palmetto	93	40	65.5	0.21	
Paradise Valley	104	34	67.5	0.46	
Reno*[5]	96	64	78.2	0.00	
Reno State University	93	42	67.2	0.00	
Reese River	.....	.....	.....	0.03	
Ruby Valley†	.....	.....	.....	T.	
St. Clair	93	42	70.3	0.00	
St. Thomas	112	54	87.6	T.	
Stofiel	96	28	59.4	0.21	
Sunnyside[6]	105	40	76.0	0.02	
Tecoma*[1]	104	60	76.7	T.	
Toano*[1]	100	52	71.3	0.00	
Tybo	97	45	70.8	0.60	
Verdi*[1]	95	50	67.7	0.00	
Wadsworth*[1]	100	54	75.9	0.05	
Wells	90	36	65.2	0.19	
New Hampshire.					
Alstead*[6]	86	51	67.9	3.37	
Belmont	.....	.....	.....	4.00	
Berlin Mills	92	38	63.0	2.97	
Bethlehem	92	44	65.0	2.70	
Brookline*[1]	90	57	70.5	5.72	
Concord	92	41	66.8	3.52	
Dublin	90	43	64.1	3.95	
Grafton	90	40	64.3	4.22	
Hanover	88	43	65.7	2.03	
New Hampshire—Con'd.	°	°	°	*Ins.*	*Ins.*
Keene	89	41	64.9	4.62	
Lakeport	.....	.....	.....	3.58	
Lancaster	92	46	67.8	3.02	
Mine Falls	.....	.....	.....	2.90	
Nashua	91	46	67.8	3.48	
Newton	90	44	66.6	5.44	
North Conway	93	43	65.9	2.25	
Pennichuck Station	.....	.....	.....	3.46	
Peterboro	88	39	65.0	4.70	
Plymouth	92	40	66.2	3.12	
Sanbornton†	88	42	64.5	3.82	
Stratford	93	40	66.0	3.43	
Sugar Hill	86	44	64.0	.....	
Weirs Bridge	.....	.....	.....	3.50	
West Milan	89	34	61.2	2.82	
Wolfboro	.....	.....	.....	3.55	
New Jersey.					
Allaire	93	45	70.0	.....	
Asbury Park	89	53	71.0	5.71	
Barnegat	90[b]	55[b]	71.2[f]	5.10	
Bayonne	95	50	72.6	4.62	
Beachhaven	89	57	71.6	5.80	
Belvidere	93	47	69.6	4.48	
Beverly†	98	51	72.6	3.93	
Billingsport	96	62	73.5	3.59	
Blairstown	97	51	73.9	5.82	
Boonton	95	48	70.4	4.09	
Bridgeton	95	57	74.4	1.53	
Camden	98	54	72.0	2.54	
Cape May	91	57	72.4	2.84	
Cape May C. H.†	92	53	71.0	2.49	
Charlotteburg	90	41	66.4	5.80	
Chester	89	48	67.2	6.12	
Deckertown	96	45	69.0	4.12	
Dover	95	45	68.6	3.97	
Egg Harbor City	96	47	70.8	4.16	
Elizabeth†	95	52	71.0	5.97	
Englewood	91	50	69.6	5.34	
Franklin Furnace	90	45	67.8	3.53	
Friesburg	.....	.....	.....	2.11	
Gillette	91	44	67.9	4.53	
Hammonton	.....	.....	.....	4.89	
Hanover	90	48	69.3	4.65	
Hightstown	98	53	72.7	5.85	
Imlaystown	97	54	73.0	3.81	
Junction	.....	.....	.....	4.01	
Lambertville	97	50	72.0	4.02	
Millville	98	51	73.2	2.68	
Moorestown	93	52	71.1	2.94	
Newark *a*	92	55	71.0	4.67	
Newark *b*	93	56	71.7	4.72	
New Brunswick *a*	96	51	72.1	4.36	
New Brunswick *b*	91	50	69.0	4.10	
Newton	96	48	68.2	3.47	
Ocean City	91	53	71.4	2.25	
Oceanic	95	56	73.8	4.61	
Paterson	92	52	70.7	4.43	
Perth Amboy	95	52	71.8	5.11	
Plainfield	93	51	71.2	5.64	
Rancocas*	98	56	.....	3.51	
Readington*[6]	98	62	75.9	.....	
River Vale	90	42	68.4	6.70	
Salem	94	53	72.0	2.96	
Somerville	96	50	71.9	4.67	
South Orange	91	51	70.6	5.03	
Toms River	96	47	70.4	7.73	
Trenton	96	56	74.2	3.42	
Vineland	99	49	73.1	2.93	
Whiting	96	48	71.4	4.95	
Woodbine	91	48	70.5	2.90	
New Mexico.					
Albert†	96	55	73.6	11.51	
Albuquerque†	96	51	74.0	2.78	
Alma†	98	52	74.6	3.25	
Aztec†	96	44	71.8	0.54	
Bernalillo†	97	53	74.2	2.55	
Chama	91	37	63.2	2.20	
Deming*[5]	103	63	80.9	3.76	
East Las Vegas†	88	46	65.8	6.84	
Eddy†	105	61	80.0	4.80	
Engle†	102	55	76.4	3.91	
Espanola†	98	50	70.0	3.01	
Fort Bayard	94	52	71.4	6.25	
Fort Stanton†	95	46	67.4	6.03	
Fort Union†	89	44	65.0	7.12	
Fort Wingate	96	45	71.4	1.23	
Galisteo†	107	.....	.....	4.54	
Gallinas Spring†	102	52	74.4	10.05	
Gila	103	56	80.1	1.62	
Las Cruces	102	56	76.0	3.03	
Lordsburg*[5]	97	69	83.4	1.22	
Los Lunas†	104	50	74.8	3.45	
Lower Penasco†	97	51	71.0	7.62	
Monero†	89	34	62.0	2.66	
Ocate†	88	40	64.2	7.24	
Puerto de Luna†	103	53	77.3	4.87	
Raton†	91	44	68.4	4.97	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
New Mexico—Cont'd.	°	°	°	*Ins.*	*Ins.*
Rincon†	107	58	79.5	4.63	
Roswell†	106	55	78.2	4.45	
San Marcial†	93	54	72.8	2.60	
Socorro†	95	55	73.6	4.09	
Springer	95	40	70.3	1.53	
Taos†	93	42	67.2	3.84	
New York.					
Addison	91	44	65.8	2.02	
Akron				2.92	
Alfred Center	92	42	65.8	2.60	
Angelica†	89	39	62.7	2.40	
Appleton	93	47	67.4	1.15	
Arcade	88	42	64.0	2.38	
Arkwright	87	40	66.0		
Baldwinsville	94	49	68.8	3.22	
Bedford	89	46	67.8	4.67	
Big Sandy *10	89	50	67.8		
Binghamton†	92	42	65.7	4.06	
Bloomville				4.05	
Brentwood	90	44	68.8	6.00	
Brookfield	93	38	70.9	1.33	
Brooklyn	90	59	74.2	4.72	
Canton†.	92	40	66.8	2.96	
Charlotte *10	88	51	65.1		
Cherry Creek				1.83	
Cooperstown†	89	46	65.0	3.80	
Cortland				4.56	
De Kalb Junction				3.68	
Demster				2.54	
Deposit				1.95	
Elmira †*1	93	52	70.1	2.34	
Fleming	91	48	67.4	4.11	
Fort Niagara†	93	49	68.8	1.11	
Friendship	91	38	63.8	2.72	
Glens Falls	90	45	67.4	2.85	
Gloversville	87	44	65.8	3.41	
Hamilton	92	37	64.8	2.62	
Haskinville				3.14	
Honeymead Brook	89	47	67.6	2.44	
Humphrey	88	42	64.4	3.52	
Ithaca	90	43	66.4	1.96	
Jamestown *6	86	48	67.3		
Kings Station				3.65	
Lebanon Springs	90	42	65.6	4.05	
Le Roy	91	47	66.2	1.93	
Lowville	92	39	64.6	2.28	
Lyons	91	50	67.6	2.59	
Madison Barracks†	92	47	67.4	2.92	
Malone	91	44	64.8	3.08	
Manhattan Beach†	85	55	68.2	3.00	
Minnewaska	86	46	65.1	1.90	
Mount Morris	94	44	67.2	1.74	
Newark Valley				3.38	
New Lisbon	92	37	62.9	2.53	
North Hammond†	96	46	68.2	2.94	
Number Four†	88	39	62.1	4.16	
Ogdensburg	92	48	67.8		
Oneonta	95	43	67.0	3.20	
Oxford	94	38	65.8	2.48	
Palermo†	93	41	66.2	2.24	
Perry City	92	40	65.5	2.72	
Pine City				2.05	
Pittsford	94	47	67.1	2.33	
Plattsburg Barracks	88	46	66.9	2.15	
Port Jervis	91	46	68.2	3.20	
Potsdam	91	44	67.6	3.34	
Poughkeepsie	93	40	68.2	2.24	
Rome	88	45	65.8	3.35	
Romulus	92	48	67.8	3.20	
Rose†				2.58	
Saranac Lake	90	39	63.0	2.46	
Scottsville				2.10	
Setauket†	88	54	69.6	3.41	
Skaneateles				2.90	
South Canisteo	90	36	63.6	2.77	
South Kortright†	98	36	64.0	3.11	
Stillwater	92	42	68.8	4.71	
Turin	87	40	63.6	2.85	
Tyrone				2.08	
Varysburg	95	37	65.8	2.60	
Wappingers Falls	91	50	69.9	2.45	
Warwick				3.82	
Watertown	90	50	68.0	3.54	
Waverly†	96	40	67.6	1.58	
Wedgwood	94	45	67.5	2.31	
West Point†	91	53	67.2	6.86	
Willets Point	93	53	70.8	4.85	
North Carolina.					
Asheville†	89	51	69.2	2.32	
Bailey				5.07	
Bakersville	90	50	68.8	3.86	
Blowing Rock†	81	45	65.8		
Bryson City†				5.47	
Chapel Hill†	98	56	76.4	3.19	
Currituck Inlet†				5.90	
Experimental Farm	96	60	76.2	7.03	
Fair Bluff†				4.66	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
North Carolina—Cont'd.	°	°	°	*Ins.*	*Ins.*
Falkland *1	93	62	75.0	7.12	
Fayetteville†	94	60	77.8	5.61	
Flat Rock	89	50	70.6	4.18	
Goldsboro†	97	61	79.2	3.22	
Greensboro†	94	60	76.0	5.46	
Greenville				6.29	
Henderson†	98	59	76.6	8.42	
Highlands	83	48	66.0	4.41	
Horse Cove†	87	53	71.0	4.94	
Lenoir *1	87	61	73.5	5.65	
Linville†	81	43	64.0	5.24	
Littleton†	99[j]	59[j]	76.0[j]	7.22	
Louisburg†	96	58	76.6	5.55	
Lumberton†	96	59	80.2	2.66	
Lynn *†	94		74.0	4.85	
Mocksville†	91	60	75.0	4.53	
Moncure†	97	60	75.8	5.93	
Morganton *†	95	58	75.5	2.42	
Mount Airy†	94	54	73.4	4.28	
Mount Pleasant	93	58	76.5	4.12	
Murphy†				8.28	
Newbern†	95	58	78.4	5.33	
Oak Ridge†	95	56	75.2	6.16	
Pantego				6.62	
Pittsboro	93	54	73.5	5.60	
Raleigh *†	94	63	78.0	5.05	
Rockingham†	99	59	79.4	4.84	
Roxboro†	96	54	75.2	4.35	
Rutherfordton†	87	55	72.6	4.09	
Salem	99	58	77.0		
Salisbury	97			3.74	
Saxon†	99	50	75.4	5.00	
Selma	97	58	76.4	4.38	
Skyuka	85	54	69.7	4.66	
Sloan†	95	57	78.0	5.08	
Soapstone Mount†	96	54	74.4	5.20	
Southern Pines† [6]	98		77.7	4.93	
Southport†	89	60	78.0	9.03	
Tarboro	99[d]	57[d]	77.5[d]	5.96	
Waynesville†	90	58	70.2	4.15	
Weldon†	96	59	76.7	7.01	
Willeyton	94	57	75.7	6.81	
North Dakota.					
Ashley†	102	39[e]	67.4[e]	0.95	
Berlin	95	39	66.3	1.36	
Churchs Ferry	94	35	66.2	3.70	
Coal Harbor	93	44	66.6	3.37	
Dickinson†	96	29	65.2	2.47	
Ellendale	98	44	69.5	2.15	
Fargo†	91	39	64.8	3.24	
Forman†	102	28	66.0	2.33	
Fort Berthold†	98	40	68.4	2.49	
Fort Yates†	98	34	67.0	1.30	
Gallatin†	96	36	65.2	1.81	
Grafton†	85	40	62.9	3.30	
Jamestown†	87[j]	52[j]	68.4[j]	1.44	
Kelso†	95[c]	36[c]	64.8[c]	3.66	
Lakota	84	38	64.0	2.58	
Larimore†	92[b]	37[b]	64.3[b]	1.87	
Lemert†				3.08	
McKinney	94	40	67.5	2.75	
Milton†	90	35	65.3	3.30	
Minto†	90[c]	40[d]	66.8[d]	3.86	
Napoleon†	98	43	68.1	1.91	
New England City†	98	36	68.2	1.90	
Oakdale†	92	45	66.2	3.90	
Portal†	100	40	67.7	6.28	
Power†	95	44	66.4	6.36	
St. John†	85	40	64.0	3.90	
Sheyenne	95	39	65.2	2.75	
Steele†	99	41	67.4	1.13	
University†	88	39	64.0	2.69	
Washburn	98	43	67.3	2.10	
Wild Rice *‡			65.9	4.12	
Willow City†	94	36	64.4	2.72	
Woodbridge†	88	33	63.0	4.12	
Ohio.					
Akron	94	46	66.9	2.08	
Annapolis	100	43	69.6	3.14	
Arcanum				1.20	
Ashland	92	45	69.0	2.00	
Ashtabula	94	44	68.6	1.86	
Athens	99	46	71.6	1.56	
Atwater				2.70	
Auburn	95	34	65.6	2.22	
Bangorville	94	47	71.7	2.04	
Bellefontaine	98	43	71.2	0.95	
Bement [1]	99[e]	39	66.4	1.91	
Benton Ridge	101	43	72.3	1.70	
Bethany	99	49	73.8	1.19	
Big Prairie	96	44	69.8	2.61	
Binola	101	47	74.0	1.82	
Bissells	96	48	69.1	1.85	
Bladensburg	97	40	69.3	3.74	
Bloomingburg	97	47	72.8	1.77	
Bloomington				1.86	
Bowling Green	100	41	71.1	0.83	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Bucyrus	94	50	71.8	2.80	
Cambridge	99	43	69.5	2.84	
Camp Dennison	101	53	76.1	1.71	
Canal Dover	95	44	69.0	3.88	
Canton†	93	46	70.0	2.25	
Cardington	96	40	70.9	2.30	
Carrollton	100	41	67.8	3.06	
Cedarville				1.74	
Celina	94	49	73.7	1.34	
Cherry Fork	100	45	73.4	1.44	
Circleville *a* †				0.89	
Circleville *b*	100	48	74.4	1.21	
Clarksville	93	50	72.6	5.86	
Cleveland	94	48	69.3	1.53	
Clifton	99	44	73.6	2.59	
Coalton	103	40	72.6	1.75	
Colebrook	93	38	67.6	3.25	
Cynthiana	95	48	73.4	2.24	
Dayton *a*	99	51	75.4	0.65	
Dayton *b* †				0.74	
Defiance	99	44	72.5	1.30	
Demos	96	49	71.2	2.07	
Dupont	98	52	73.6	1.65	
Ellsworth	93	42	68.6	1.55	
Elyria	101	46	72.8	1.43	
Fairport Harbor *10	96	56	70.6		
Fayetteville	95	49	72.4	2.91	
Findlay	96	44	71.6	3.04	
Fostoria	98[c]	48[c]	71.8[c]	1.87	
Frankfort	94	45	72.4	2.58	
Garrettsville	94	38	66.1	2.50	
Granville	99	40	70.3	2.15	
Gratiot	96	48	70.7	3.34	
Greenfield	96	53	73.9	1.59	
Greenhill	98	37	67.8	3.18	
Greenville	94	48	71.5	0.70	
Hackney	99	47	73.5	1.07	
Hanging Rock	98	46	72.6	3.86	
Hebbardsville	99	47	74.8	1.43	
Hedges	99	41	70.5	1.16	
Hillhouse	98	41	66.9	3.15	
Hillsboro	100	47	72.5	2.27	
Hiram	94	42	68.7	2.13	
Hudson	96	41	69.1	1.42	
Jacksonboro	98	50	74.5	1.60	
Kenton†	100	45	73.5	1.14	
Kilbourne	94	45	70.2	1.22	
Killbuck	101	44	72.5	1.90	
Leipsic	100	42	71.8	1.00	
Levering	96	35	67.4	2.20	
Logan	101	44	72.0	1.95	
Lordstown	95	38	66.8	2.01	
McArthur	100	45	72.4	3.06	
McConnellsville	100	46	71.8	1.23	
Marietta *a* †				1.97	
Marietta *b*	98	48	72.0	1.47	
Marion	97	44	71.3	2.21	
Medina	95	40	69.4	2.30	
Milfordton	102	43	70.8	1.03	
Milligan	103	40	71.2	2.47	
Montpelier	96	44	70.1	1.38	
Napoleon	98	46	71.9	1.23	
New Alexandria	95	47	71.0	3.33	
New Berlin	94	42	71.5	2.81	
New Bremen	96	45	71.8	2.32	
New Comerstown	99	44	69.9	3.54	
New Holland				1.69	
New Moscow				3.29	
New Paris	98	48	76.7	0.71	
New Waterford	92	35	64.7	3.36	
North Lewisburg	99	45	72.2	0.80	
North Royalton	97	43	70.1	2.24	
Norwalk	98	34	67.0	2.88	
Oberlin	99	44	70.2	0.75	
Ohio State University	97	45	72.5	1.25	
Orangeville	96	37	67.5	1.90	
Ottawa	96	43	71.2	1.28	
Pataskala	100	45	72.7	0.99	
Peoli	100	45	71.5	3.63	
Philo	98	51	74.1	1.99	
Plattsburg	94	45	72.1	1.86	
Point Marblehead *10	85	63	73.7		
Pomeroy	100	48	73.8	1.99	
Portsmouth *a* †				4.03	
Portsmouth *b*	100	48	74.8	2.51	
Richwood				1.63	
Ridgeville Corners	97	45	70.9	0.86	
Ripley	95	51	73.3	2.54	
Rittman	93	39	67.8	2.84	
Rocky Ridge	102	47	73.2	2.00	
Rosewood	97	45	71.7	0.63	
Sharon Center	98	47	75.9	1.34	
Shenandoah	97	42	69.9	2.42	
Sidney *b*	98	46	71.9	1.27	
Springboro				0.95	
Steuben				2.65	
Stoutsville				1.27	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Ohio—Cont'd.	°	°	°	*Ins.*	*Ins.*
Sylvania	101	44	70.8	1.31	
Thurman	106	50	75.2	1.99	
Tiffin†	97	49	71.9	2.86	
Upper Sandusky	94	40	71.0	2.45	
Vanceburg	96	47	73.1	1.66	
Van Wert	97	46	72.6	1.49	
Vermilion	98	45	69.8	1.25	
Vickery	97	47	69.3	1.37	
Walnut				1.50	
Warren	97	40	68.5	2.24	
Warsaw[8]	102	40	69.1	2.12	
Wauseon	99	45	72.2	0.71	
Waverly	101	46	73.1	1.80	
Waynesville				1.81	
Wellington	96	40	69.3	1.17	
Westerville	94	46	71.2	1.25	
Wheeler†				2.16	
Willoughby				3.24	
Wooster *a*	92	42	68.6	2.19	
Youngstown	95	46	68.8	1.65	
Zanesville†				1.50	
Oklahoma.					
Alva†	105	55	77.8	4.26	
Arapaho†	102	55	77.6	5.08	
Britton†				5.96	
Burnett†	99	57	78.4	4.88	
Clifton†	101	56	80.4	4.61	
Enid†	105	55	79.6	1.62	
Fort Reno†	104	52	79.0	2.24	
Fort Sill	101	61	78.7	6.28	
Guthrie†	103	58	81.0	3.64	
Hennessey	103	58	80.6	3.99	
Keokuk Falls†	102	60	79.8	8.45	
Mangum†	105	54	76.6	6.33	
Norman†	104	56	81.0	4.23	
Ponca†	106	56	81.7	1.55	
Pond Creek†	100	50	76.2	4.17	
Prudence†				7.25	
Sac and Fox Agency†	97	56	78.2	9.05	
Stillwater†	100	56	78.4	3.60	
Winnview†	104	53	79.4	2.83	
Oregon.					
Albany *a*†	99	39	66.1	0.39	
Arlington†	101	51	71.6	0.60	
Ashland *b*	97	42	67.9	0.36	
Aurora[*8]	102	55	70.6	0.17	
Aurora (near)	94	40	68.4	0.30	
Bandon	78	45	58.8	1.01	
Beulah†	98	35	67.8	0.00	
Brownsville[*8]	98	55	70.5	0.32	
Burns	97	21	59.6	0.00	
Canyon City†	99	40	69.6	0.20	
Cascade Locks	95	49	68.6	1.15	
Comstock[*8]	98	48	66.1	0.46	
Condon	95	37	65.2	0.47	
Corvallis (near)	96	43	66.8	0.41	
Dayville†	99	41	66.6	0.42	
Detroit†	100	40	65.2	1.00	
Eugene†	96	42	64.4	0.30	
Fife†	91	30	59.6	0.20	
Glenora	98	35	60.8	1.76	
Grants Pass *a*†	100	38	68.6	0.15	
Happy Valley†	99	27	61.5	0.20	
Heppner†	95	42	65.7	0.25	
Hood River (near)	87	43	62.8	0.64	
Hubbard	95	40	64.0	0.46	
Irvington*	95	17		0.20	
Jacksonville	94	43	67.4	0.22	
Joseph†	91	35	60.4	0.64	
Junction City[*8]	102	48	66.9	0.48	
Klamath Falls	97	35	67.2	0.50	
Lafayette[*8]	100	54	70.0	0.00	
La Grande†	98	42	66.4	0.50	
Lakeview†	88	39	65.0	0.20	
Langlois	90	40	60.0	1.43	
Lone Rock	93	23	58.6	0.38	
Lorella	94	33	66.6	1.50	
McMinnville *a*†	98	39	65.2	0.43	
McMinnville *b*[*8]	98	48	65.3	0.45	
Merlin[*8]	102	52	69.7	0.21	
Monmouth[*8]	98	55	69.5	0.19	
Mount Angel†	100	44	67.6	0.38	
Mount Hood	74	30	52.4		
Nehalem				1.23	
New Bridge	100	39	69.9	0.01	
Newport	94	43	57.8	0.91	
Pendleton	107	42	69.9	0.39	
Riddles[*8]	98	48	66.5	0.25	
Salem *a*[*8]	96	58	69.6	0.20	
Salem *b*†	93	44	64.3	0.61	
Salmon	87	32	55.5		
Sheridan[*8]	95	56	67.4	0.72	
Silverton[*8]	96	56	67.4	0.47	
Siskiyou[*8]	95	47	71.9	0.00	
Sparta	94	34	65.3	0.53	
Springbrook	97	45	66.8	0.35	
Springfield[*8]	99	54	67.7	0.08	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Oregon—Cont'd.	°	°	°	*Ins.*	*Ins.*
The Dalles†	97	47	70.1	0.32	
Tillamook Rock L. H.†				0.65	
Umatilla†				0.07	
Vale	101	34	69.3	0.03	
West Fork[*8]	106	41	68.3	0.25	
Weston	102	43	66.6	0.41	
Williams	96	41	64.2	0.15	
Pennsylvania.					
Altoona	96[c]	54[c]	73.3[d]	1.75	
Aqueduct	102	45	72.5	2.66	
Beaver Dam†				3.46	
Bethlehem				3.84	
Blooming Grove[*1]	99	53	67.5	4.18	
Brookville†				3.06	
Browers Lock				2.83	
Cameron				3.10	
Cassandra	86	49	65.8	4.85	
Center Hall				3.60	
Chambersburg†	96	46	69.2	1.84	
Clarion†				5.05	
Coatesville	95	48	70.8	2.20	
Confluence†				6.18	
Coopersburg	93	54	70.0	4.00	
Davis Island Dam†				2.48	
Doylestown				3.11	
Drifton	90[c]	46[c]	65.9[c]	2.66	
Driftwood				1.05	
Dubois†				2.29	
Duncannon				1.40	
Dyberry†	95	39	64.8	1.78	
East Bloomsburg				2.08	
East Mauch Chunk	96	45	68.9	5.41	
Easton	98	51	70.7	5.02	
Edinboro[*1]	90	44	66.4		
Ellwood Junction†				4.28	
Emporium	92	45	67.0	3.06	
Farrandsville				2.77	
Forks of Neshaminy[*1]	86	58	71.8	3.76	
Frederick				2.84	
Freeport†				2.74	
Gettysburg†	96	46	70.0	1.37	
Girardville				2.73	
Grampian	94	44	67.8	2.85	
Greensboro†				5.25	
Hamburg	95	50	70.7	3.51	
Hollidaysburg	97	42	68.3	2.66	
Huntingdon *a*†	97	42	68.0	3.15	
Huntingdon *b*				3.10	
Johnstown†				3.02	
Karthaus				0.67	
Keating				1.99	
Kennett Square	94	50	71.0	2.90	
Lancaster	96	48	71.3	3.28	
Lansdale				4.34	
Lebanon	99	47	70.6	2.10	
Le Roy†	94	46	66.0	3.42	
Lewisburg	97	42	68.8	2.54	
Lock Haven†	98[c]	47[c]	71.4[c]	2.83	
Lock No. 4†				2.87	
Lycippus	92	46	70.0	3.82	
Mahoning†				3.44	
Mifflin				2.03	
Oil City†				3.65	
Ottsville				3.61	
Parker†				4.54	
Philadelphia *a*				3.21	
Philadelphia *b*	95	56	73.2	3.15	
Philadelphia *c*	91	52	73.0	3.48	
Point Pleasant				2.36	
Pottstown	96	52	72.4	2.53	
Quakertown	94	46	68.8	4.63	
Reading[5]			70.6	4.40	
Renovo				2.16	
Ridgway†				2.57	
Saegerstown	95	35	65.4	3.15	
Salem Corners	91	49	67.4	5.09	
Saltsburg†				6.16	
Seisholtzville				4.88	
Selinsgrove	98	46	69.6	2.54	
Shinglehouse	93	34	63.0	1.30	
Sinnamahoning				2.95	
Smethport	90	37	63.8	2.83	
Smiths Corners				3.51	
Somerset	96	40	66.4	2.94	
South Bethlehem	94	51	70.0	5.08	
South Eaton	90	45	67.0	2.81	
Spruce Creek				2.68	
State College	91	46	67.2	3.11	
Stoyestown†				4.30	
Towanda	96	43	67.3	2.84	
Trout River				2.71	
Uniontown	93	47	69.6	5.61	
Warren†				2.92	
Wellsboro[*†1]	92	35	62.7	3.22	
West Chester	93	52	71.4	1.73	
West Newton†				3.19	
White Haven	92	41	65.9	2.16	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Pennsylvania—Cont'd.	°	°	°	*Ins.*	*Ins.*
Wilkesbarre†	98	41	70.4	2.59	
Williamsport	93	50	68.9	1.93	
York†	99	47	70.6	1.41	
Rhode Island.					
Bristol	84	54	66.5	2.98	
Kingston	87	48	67.4	5.36	
Lonsdale				5.62	
Pawtucket	90	49	68.0	5.33	
Providence *a*	92	56	71.6	4.64	
Providence *c*	90	52	68.4	5.07	
South Carolina.					
Allendale†	98	62	80.4	4.97	
Anderson†				2.42	
Batesburg†	96	58	77.8	3.85	
Blackville†	98	62	81.5	6.73	
Camden†				2.68	
Central†	98	59	77.4	3.32	
Cheraw *a*†	100	56	80.6	0.73	
Cheraw *b*†				1.27	
Conway†				5.52	
Darlington[*1]	96	64	82.7		
Edisto†				4.76	
Effingham†				4.45	
Florence†	97	60	81.4	3.44	
Georgetown†	93	60	79.6	8.20	
Gillisonville†	102	62	81.0	4.10	
Greenville†	91	58	76.4	3.43	
Greenwood†	96	64	80.1	3.78	
Hardeeville†	94	66	82.6	5.65	
Holland†	93	61	77.5	4.74	
Kingstree *a*†	98	63	82.3	3.98	
Kingstree *b*†				3.69	
Little Mountain	97	61	80.4	7.24	
Longshore†	96	58	78.8	3.24	
McCormick[*†1]	101	63	80.4		
Mount Carmel†				3.15	
Pinopolis[*1]	98	66	78.5	4.46	
Port Royal†	94	69	82.6	6.59	
Red Hill[*8]		68	76.0	1.92	
Ridgeway†	93	64	78.5	1.85	
St. George†	96	62	81.0	2.19	
St. Matthews†	96	64	80.6	6.24	
St. Stephens†				5.15	
Santuck†	95	58	78.0	1.55	
Shaws Fork[*1]	99	64	81.8	3.97	
Society Hill†	91	59	77.9	4.60	
Spartanburg†[d]	99	54	79.6	2.90	
Statesburg†	91	63	78.9	5.62	
Trenton	92	65	79.8	4.88	
Trial†	94	60	79.5	4.71	
Yorkville	93	62	77.6	3.46	
South Dakota.					
Aberdeen†	98	44	68.0	2.82	
Alexandria†	99	53	70.5	2.14	
Ashcroft†	100	34	68.0	0.38	
Bowdle*†[1]	99	52	73.1	2.18	
Brookings†	93	39	69.2	3.79	
Buffalo Gap*[1]	102	50	71.0	2.30	
Castlewood†	102	33	69.2	2.79	
Cross†	91	36	62.2	0.86	
De Smet†				2.35	
Edgemont				0.43	
Farmingdale				0.52	
Faulkton†	103	43	69.4	1.89	
Flandreau†	96	38	69.8	2.05	
Forestburg†	100	36	72.3	0.71	
Forest City†	107	27	73.7	1.05	
Fort Meade	96	46	69.6	0.55	
Gary†	100	44	70.6	2.36	
Greenwood	100	41	74.4	0.97	
Highmore†	102	49	73.1	0.86	
Hitchcock				0.61	
Hotch City†	104	38	72.4	1.12	
Howard†	97	36	69.4	2.22	
Ipswich*[1]	96	48	71.0	2.60	
Kimball†	103	47	73.1	1.32	
Leslie†	111	45	76.2	0.50	
Mellette†	103	41	70.4	2.94	
Millbank†	96	40	67.8	2.63	
Northville*[1]	101	44	70.0	2.67	
Nowlin†	106	42	72.8	0.10	
Oelrichs†	108	39	69.8	0.50	
Parker†	95	35	70.4	2.41	
Parkston†	99	35	70.4	1.47	
Plankinton†	98	39	71.2	1.63	
Rosebud†	104	38	71.5	0.39	
Shiloh†	105	40	71.2	0.95	
Silver City				0.48	
Sioux Falls†	94	34	69.4	1.88	
Spearfish†	94	47	69.2	0.78	
Tyndall†	96	41	73.1	1.78	
Watertown†	94	32	65.8	2.28	
Webster†	99	36	67.2	2.89	
Wentworth†	92	40	69.1	2.56	
Wessington Springs†	100	45	72.0	1.42	
Yankton	94	46	72.5	2.89	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Tennessee.	°	°	°	*Ins.*	*Ins.*
Andersonville *[1]	95	52	73.9	4.80	
Arlington †	100	60	77.9	7.57	
Ashwood *[†1]	92	62	75.9	8.07	
Bolivar †	94	62	77.6	5.77	
Brownsville †	98	61	79.3	5.05	
Byrdstown †	91	59	74.9	9.27	
Carthage †				5.72	
Clarksville †	94	61	76.4	7.88	
Clinton †				5.08	
Columbia †				5.94	
Covington δ †	99	60	79.1	7.90	
Dyersburg †	99	56	78.8	4.77	
Elizabethton †	94	55	74.2	9.54	
Fairmount *[1]	84	64	72.2		
Florence †	91	60	75.8	5.02	
Greeneville †	94	56	72.8	6.15	
Hohenwald *[†3]		64	73.6	7.33	
Jacksboro *[4]	91	56	71.8	6.29	
Jackson †	95	60	77.0	5.74	
Johnsonville †				7.92	
Lynnville *[1]	95	60	74.5	6.05	
McMinnville †	91	52	73.4	6.73	
Milan †	96	56	77.4	4.18	
Mount Carmel	92	61	76.0	8.01	
Newport *[3]	96	60	75.4	5.31	
Nunnelly *[1]	91	64	76.3	6.91	
Palmetto †				5.57	
Riddleton †	93	62	78.4		
Rockwood †				5.68	
Rogersville *[1]	93	58	73.3	8.70	
Rugby *[1]	91	60	73.4	4.93	
Savannah	94	65	78.6	6.56	
Springdale *[1]	98	60	76.7	10.83	
Trenton	92	58	75.4	4.50	
Tullahoma *[†1]	88	54	70.9	5.50	
Waynesboro *[1]	94	59	75.8	6.15	
Texas.					
Albany *[†1]	88	60	75.4	6.23	
Alice †	98	70	83.7	0.00	
Angleton	100	68	82.2	1.47	
Arthur City †				7.13	
Aurora *[1]	99	66	80.2	3.32	
Austin *a*	99	67	84.6	0.00	
Austin δ *[2]	96	73	84.7		
Ballinger †				4.16	
Belton †	102	61	86.8	1.48	
Boerne *[†1]	96	73	84.2	0.16	
Brady †	100	63	81.7	3.04	
Brazoria †	95	72	82.6	0.93	
Brenham †	99	73	85.6	2.99	
Burnet *[†1]	96	73	85.2	1.81	
Camp Eagle Pass †	106	72	89.4	0.00	
Chillicothe	104	56	76.4	8.80	
Coleman *[3]		66	78.0	4.74	
College Station	94	69	81.8	1.51	
Columbia †	96	71	83.4	0.04	
Corsicana δ †	100	66	82.9	5.89	
Cuero †	99	68	85.6	0.04	
Dallas †	98	64	81.8	3.61	
Dean †	97	43	73.6		
Devine	98	70	83.9	T.	
Durham †				5.99	
Duval *[1]	106	78	88.0	T.	
Estelle †	99	64	81.8	6.00	
Flower Bluff †	88	75	82.6	0.00	
Forestburg †	94	64	78.6	7.28	
Fort Brown †	97	70	85.0	0.02	
Fort Clark	103	65	86.8	0.78	
Fort Hancock	107	54	79.2	4.75	
Fort McIntosh	103	65	87.8	0.00	
Fort Ringgold †	103	72	87.2	0.00	
Fort Stockton				6.23	
Fort Worth	100[e]	63[e]	81.9[e]	4.40	
Fredericksburg *[†1]	96[e]	69	82.7	T.	
Gainesville †	92	65	80.0	7.13	
Golindo				4.35	
Graham †	102	59	80.2	3.65	
Grape Vine †	96	65	80.6	7.08	
Hale Center †	96	61	73.7	7.12	
Hallettsville †	101	72	85.1	0.41	
Happy †	100	55	74.1	4.94	
Haskell †	101	63	82.7	6.23	
Hearne †	100	70	85.4	0.15	
Hewitt				6.25	
Houston †	98	66	82.8	0.84	
Huntsville †	96	70	83.6	1.25	
Kent				3.11	
Lampasas *[1]	100	69	83.8	0.72	
Leakey †	95	71	84.7	0.00	
Llano *[†5]	102	69	86.2	0.60	
Longview †	102	59	83.8	5.70	
Luling †	101	73	86.2	0.03	
Marshall †	98	66	80.6	11.75	
Menardville *[†1]	98	63	81.0	2.42	
Midland †	105	59	77.8	3.58	
Mount Blanco †	84	58	71.8	5.29	
New Braunfels †	97	70	83.0	T.	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Texas—Cont'd.	°	°	°	*Ins.*	*Ins.*
Orange †	96	71	82.2	5.08	
Panter *[†1]	103[b]	72[b]	82.4[b]	3.74	
Paris †	96	64	80.7	9.45	
Roby †	107	54	77.2	12.07	
Rockport *[1]	96	80	85.8		
Rock Springs *[†1]	98	68	82.0	2.13	
Round Rock *[3]		78	87.0	0.00	
Runge †	100	74	85.9	0.60	
San Antonio	99	74	85.8	0.75	
San Marcos *a* †				0.05	
San Marcos δ †	98	74	86.0	T.	
Sierra Blanca †	100	60	78.6	2.42	
Stafford	102	69	85.4	0.82	
Sulphur Springs †	103	63	84.6	10.25	
Temple †	97	70	83.6	1.37	
Twohig †	104[4]	69[4]	86.6[4]	0.00	
Tyler †	102	68	82.5	5.84	
Waco †	98	70	85.0	2.47	
Weatherford †	97	63	81.8	5.24	
Wichita Falls †	100	56	78.8	4.97	
Utah.					
Blue Creek *[3]	98	50	76.6	T.	
Brigham City				0.23	
Cisco †	106	46	78.4	0.57	
Corinne *[3]	99	50	84.8	0.12	
Deseret [b]	93	46	70.6	T.	
Fillmore †	110	35	69.4	0.56	
Fort Duchesne †				0.17	
Giles †	105	44	76.6	0.14	
Green River †	106	50	80.0	0.00	
Grouse Creek *[†1]	94	45	63.9	0.12	
Grover *[†1]	90	36	60.5	2.22	
Heber †	95	35	65.0	1.37	
Huntsville				0.80	
Kelton *[3]	95	50	75.0	0.71	
Koosharem	90	36	63.1	1.41	
Levan †	92	45	74.2	0.84	
Loa	93	33	63.8	0.71	
Logan	92	46	68.8	0.56	
Manti †	104	42	74.8	0.85	
Millville †				0.24	
Moab †	102	52	77.0	1.14	
Moroni †				1.00	
Mount Pleasant *[†1]	95	50	70.8	1.10	
Ogden *a* *[2]	98	58	75.3	0.36	
Ogden δ *[1]	92	52	77.4		
Orton †	92	34	64.4	0.50	
Pahreah †	102	45	75.0	0.60	
Parowan †	93	41	68.4	0.70	
Promontory *[3]	99	60	78.6	T.	
St. George †	108	50	79.8	0.06	
Scipio	94	40	68.4	0.42	
Snowville †	93	37	65.8	0.25	
Soldier Summit †	95	25	57.8	0.34	
Terrace *[3]	102	50	82.2	0.02	
Thistle †	96	37	65.5	0.51	
Vernal †	94	34	69.0	0.76	
Vermont.					
Brattleboro	91	46	68.0	2.11	
Burlington †	88	55	70.6	2.46	
Chelsea *[1]	86	50	63.3	2.30	
Cornwall	89	45	67.2	2.80	
Enosburg Falls †	90	40	65.3	3.00	
Hartland †	88	40	63.2	4.05	
Irasburg †	87	39	63.8	2.31	
Jacksonville	86	36	59.4	3.56	
Norwich *[3]	88[c]	45	64.3	4.22	
St. Johnsbury	89	42	65.6	3.19	
Simonsville	86	40	62.2	3.06	
Strafford *[†1]	87	46	64.0	2.08	
Vernon *[3]	95	55	70.0	2.97	
Wells	86	45	65.7	5.05	
Woodstock	94	42	65.9	3.25	
Virginia.					
Abingdon †				8.54	
Alexandria	96	60	76.8	3.96	
Ashland †	98	54	74.0	3.09	
Avon †	98	54	74.1	3.36	
Big Stone Gap †	92	45	68.8	6.62	
Birdsnest *[†1]	90	64	75.5	4.95	
Blacksburg	90	48	68.5	5.93	
Buchanan †				4.01	
Callaville †	94	56	74.3	7.85	
Charlottesville	96	52	73.1	1.77	
Christiansburg †				4.95	
Clarksville †				4.48	
Dale Enterprise †	94	46	68.2	5.01	
Danville †				5.86	
Fredericksburg †	93	56	73.1	5.18	
Grahams Forge				4.47	
Hampton	93	62	76.8	4.71	
Hot Springs	90	58	71.9	3.03	
Irwin †	97	51	73.3	5.05	
Lexington †	95	50	71.6	3.56	
Manassas	97[c]	51[c]	71.8[c]	5.92	
Marion †	91	51	70.4[4]	7.51	
Monterey †	90	40	64.6	5.11	

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Virginia—Cont'd.	°	°	°	*Ins.*	*Ins.*
Nottoway	100	56	76.0	3.92	
Petersburg †	97	58	75.6	5.00	
Richmond (near) †	100	58	75.3	5.28	
Richmond δ †				4.29	
Rockymount †	96	58	74.5	4.83	
Salem †	92	58	73.7	6.97	
Saltville	91	53	70.4	8.39	
Smithville †	98	57	74.8	2.47	
Spottsville †	95	55	75.4	4.15	
Stanardsville †	94	50	71.3	3.59	
Staunton †	96	48	70.7	4.71	
Stephens City †	97[c]	50[c]	72.2[c]	4.49	
Sunbeam †	94	58	75.6	7.91	
Warsaw †	95	55	74.5	4.85	
Westbrook Farm	97	56	74.7		
Washington.					
Aberdeen †	94	42	61.0	0.90	
Anacortes				0.30	
Blaine	88	35	60.6	0.14	
Bridgeport †	104	28	64.8	0.05	
Cascade Tunnel †	87	36	55.8	0.49	
Centerville	98	40	65.3	0.32	
Colfax †	93	39	63.8	0.71	
Connell	109	40	73.2	0.00	
East Sound	78[b]	44[b]	61.2[b]	0.24	
Ellensburg †	91	41	64.1	T.	
Ellensburg (near)	98	44	68.2	T.	
Fort Simcoe	95	40[c]	70.4	0.12	
Fort Spokane	96	40	67.3	0.05	
Grand Mound †	93	38	63.6	0.19	
Hunters †	86	34	59.6	0.48	
Kennewick †	103	48	72.8	T.	
Lakeside †	96	50	70.7	T.	
Madrone *[†1]	87	41	60.8	0.64	
Mayfield †	98	40	64.3	1.09	
Monte Cristo †	89	42	60.3	2.20	
Moxee Valley †	99	36	69.7	0.01	
New Whatcom †	84	37	60.9	0.04	
Olga †	85	44	61.6	0.17	
Pine Hill †	94	44	67.2	0.40	
Pomeroy †	90	50	70.0	0.30	
Rosalia †	93	37	63.2	0.23	
Silver Creek *[1]	98	40	59.6	0.98	
Snohomish †	87	39	62.4	1.09	
South Bend †	98	39	63.0	1.50	
Stampede †	90	33	60.8	1.23	
Stillaguamish †	90	38	60.1	0.30	
Sunnyside †	100	40	72.6	0.11	
Tacoma †	88	44	62.0	0.39	
Union City †	95	45	65.9	0.88	
Vashon	90	33	55.0	0.35	
Waterville †	98	39	66.5	0.00	
Wenatchee Lake †	94	38	60.3	0.10	
West Ferndale †	90	40	61.6	0.12	
West Virginia.					
Beverly †	94	48	70.1	5.30	
Bloomery †	92	46	66.6	3.12	
Bluefield †	96	48	69.5	6.58	
Buckhannon *a* †				3.67	
Buckhannon δ [1]	93	45	67.6		
Central Station *[†3]	97[c]	47	72.3[c]	3.98	
Charleston †				4.19	
Cloverdale †				4.90	
Dayton *[1]	95	54	70.5		
Elkhorn †	91	51	69.6	6.52	
Ella †	93	49	69.2	3.25	
Fairmont †				2.69	
Glenville †	94	46	70.1	4.54	
Grafton †	94	44	68.9	3.65	
Green Sulphur	93	54	72.3	3.16	
Harpers Ferry †				2.00	
Hewett †	98	50	72.6	6.70	
Hinton *a* †				6.44	
Hinton δ †	95	54	72.3		
Leachtown †				1.65	
Madison †	92	51	71.1	7.04	
Martinsburg †	95	49	70.7	2.78	
Morgantown *a* †				3.68	
Morgantown δ †	98	43	70.0	2.82	
New Martinsville †	95	50	70.8	4.14	
Nuttallburg †	98	39	69.2	5.35	
Pennsboro	97[c]	43	70.6		
Philippi †				5.15	
Point Pleasant †	99	51	72.0	4.01	
Powell † on †	95	46	68.4	5.79	
Rowlesburg †				4.34	
Sandyville †	98	45	72.0	4.46	
Tannery *[1]	98	46	70.7		
Weston *a* †				3.91	
Weston δ *[1]	96	52	72.5	3.91	
Wheeling *a* †				3.79	
Wheeling δ †	94	52	71.7	4.51	
White Sulphur Springs †	96	42	69.0	5.04	
Wisconsin.					
Amherst	94	41	67.4	0.96	
Antigo †	93[b]	36[b]	64.4[b]	3.88	
Apollonia *[†1]	91	41	69.0	4.95	

TABLE II.—*Meteorological record of voluntary and other cooperating observers*—Continued.

Stations.	Temperature. (Fahrenheit.) Maximum.	Minimum.	Mean.	Precipitation. Rain and melted snow.	Total depth of snow.
Wisconsin—Cont'd.	°	°	°	*Ins.*	*Ins.*
Barron†	94	37	65.1	4.98	
Bayfield	93	42	66.8	.....	
Beaver Dam	95	45	71.6	1.45	
Belleville	97	38	68.0	2.09	
Beloit	98	46	71.6	2.90	
Berlin	90	41	68.5	1.90	
Black River Falls†	100	37	68.2	3.06	
Butternut†	95	36	64.2	4.21	
Centralia	95[c]	39	68.9[c]	1.45	
Chilton	96	42	69.6	1.79	
Crandon†	89	35	64.6	3.35	
Delavan†	97	39	69.2	5.33	
Depere†	92	42	67.6	2.25	
Eau Claire	95	41	68.8	4.13	
Florence†	89	38	61.0	1.81	
Fond du Lac†	93	40	68.4	2.15	
Grantsburg†	94	30	67.5	4.36	
Hartford	.....	.....	.....	2.57	
Harvey†	96	41	69.6	2.93	
Hillsboro	95	35	66.8	2.46	
Janesville†	97	43	69.4	1.88	
Kenosha*[10]	90	50	70.9	.....	
Koepenick*†	86	50	65.0	2.50	
Lancaster†	95	43	72.0	1.83	
Lincoln†[2]	.....	.....	70.0	1.63	
Madison†	92	40	71.7	1.21	
Manitowoc†	90	43	64.3	1.85	
Meadow Valley†	91	37	66.4	1.49	
Medford†	97	35	66.4	3.86	
Neillsville†	92	39	66.0	2.93	
New Holstein	92	44	68.5	1.58	
Oconomowoc†	92	44	69.2	1.63	
Oconto	90	38	65.1	0.89	
Osceola†	94	34	67.0	5.35	
Pepin	100	43	68.9	4.27	
Pine River†	88[b]	42[b]	66.8[b]	2.32	
Port Washington	92	44	67.3	0.98	
Prairie du Chien	100	38	71.2	1.44	
Wisconsin—Cont'd.					
Racine*[10]	85	48	66.8	.....	
Royalton	95	39	67.3	2.03	
Sharon†	93	42	68.8	4.07	
Shawano	93	36	65.4	2.02	
Sheboygan*[10]	89	53	68.2	.....	
Spooner†	94	38	65.9	2.77	
Stevens Point†	92	41	67.8	2.11	
Sturgeon Bay Canal*[10]	85	43	64.6	.....	
Two Rivers*[10]	84	48	66.1	.....	
Valley Junction†	93	37	66.6	1.75	
Viroqua	97	42	70.4	1.33	
Watertown†	94	42	70.4	2.24	
Waukesha†	88	45	69.2	1.79	
Waupaca†	.....	.....	.....	0.70	
Wausau†	92	43	66.6	3.30	
West Bend	93	44	68.4	1.10	
Westfield†	96	44	69.6	1.76	
Whitehall†	93	35	65.6	2.64	
Wyoming.					
Big Horn Ranch	83	28	57.1	1.36	
Fort Laramie†	100	40	68.6	1.89	
Fort Washakie	92	36	63.6	0.64	
Fort Yellowstone†	87	33	60.0	0.57	
Laramie	87	34	58.9	2.71	
Lusk	97	35	66.6	1.22	
Sheridan	94	39	63.6	0.57	
Sundance	91	37	64.4	0.45	
Wheatland	101	42	70.4	1.46	
Mexico.					
Ciudad P. Diaz	100	74	88.2	0.00	
Leon de Aldamas	85	54	70.0	6.51	
Mexico	78	52	64.6	4.14	
Puebla	83	52	67.3	3.74	
Topolobampo*[1]	98	75	86.5	2.89	
New Brunswick.					
St. John	78	51	64.5	3.53	

EXPLANATION OF SIGNS.

* Extremes of temperature from observed readings of dry thermometer.

† Weather Bureau instruments.

‡ Record furnished by the Arrowhead Reservoir Company, in the San Bernardino Mountains, San Bernardino County, Cal., at elevations varying from 4,900 to 6,900 feet.

A numeral following the name of a station indicates the hours of observation from which the mean temperature was obtained, thus:

[1] Mean of 7 a. m. + 2 p. m. + 9 p. m. + 9 p. m. ÷ 4.

[2] Mean of 8 a. m. + 8 p. m. ÷ 2.

[3] Mean of 7 a. m. + 7 p. m. ÷ 2.

[4] Mean of 6 a. m. + 6 p. m. ÷ 2.

[5] Mean of 7 a. m. + 2 p. m. + 2.

[6] Mean of readings at various hours reduced to true daily mean by special tables.

[7] Mean from hourly readings of thermograph.

[8] Mean of 7 a. m. + 2 p. m. + 9 p. m. ÷ 3.

[9] Mean of sunrise and noon.

[10] Mean of sunrise, noon, sunset, and midnight.

The absence of a numeral indicates that the mean temperature has been obtained from daily readings of the maximum and minimum thermometers.

An italic letter following the name of a station, as "Livingston *a*," "Livingston *b*," indicates that two or more observers, as the case may be, are reporting from the same station. A small roman letter following the name of a station, or in figure columns, indicates the number of days missing from the record; for instance, "s" denotes 14 days missing.

No note is made of breaks in the continuity of temperature records when the same do not exceed two days. All known breaks, of whatever duration, in the precipitation record receive appropriate notice.

NOTE.—The following changes have been made in names of stations: Minnesota, Bonniwells Mills changed to Bonniwell. Missouri, Panacea changed to Mineral Springs

TABLE III.—*Data from Canadian stations for the month of July*, 1895.

Stations.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches*	*Inches.*	
St. Johns, N. F	.....	.....	.....	.....	.....	.....	.....	.....
Sydney, C. B. I	29.88	29.94	+ .03	63.7	+ 2.2	2.43	— 2.07	sw.
Grindstone, G. of St. L.	29.81	29.84	.....	62.6	.....	2.92	.....	sw.
Sable Island	29.95	.....	.....	60.4	.....	6.28	.....	w.
Halifax, N. S	29.81	29.94	+ .02	64.0	+ 1.5	3.94	— 0.81	sw.
Grand Manan, N. B	29.88	29.93	.....	60.4	.....	3.60	— 0.20	w.
Yarmouth, N. S.	29.87	29.95	+ .02	59.8	— 0.2	1.50	— 1.57	s.
St. Andrews, N. B	29.82	29.87	.....	60.5	.....	3.67	— 0.36	s.
Charlottetown, P. E. I.	29.86	29.90	.....	65.4	.....	3.46	— 0.51	sw.
Chatham, N. B.	29.86	29.88	.00	65.6	+ 2.6	3.17	— 1.53	w.
Father Point, Que.	29.82	29.85	+ .01	59.2	+ 2.2	1.37	— 1.85	w.
Quebec, Que.	29.57	29.89	+ .02	64.6	— 0.4	2.33	— 1.63	sw.
Montreal, Que	29.70	29.90	+ .02	66.8	— 1.7	2.38	— 2.19	sw.
Rockliffe, Ont	29.39	29.89	.00	61.8	— 1.2	2.21	— 0.91	nw.
Kingston, Ont	29.62	29.93	+ .03	66.0	— 2.0	2.50	— 0.76	w.
Toronto, Ont.	29.58	29.95	+ .01	65.4	— 2.1	2.47	— 0.50	nw.
White River, Ont.	28.64	29.96	.....	57.8	— 2.9	2.23	— 1.08	nw.
Port Stanley, Ont	29.36	29.98	+ .01	65.5	.....	2.23	— 1.32	w.

TABLE III.—*Data from Canadian stations*—Continued.

Stations.	Pressure. Mean not reduced.	Mean reduced.	Departure from normal.	Temperature. Mean.	Departure from normal.	Precipitation. Total.	Departure from normal.	Prevailing direction of wind.
	Inches.	*Inches.*	*Inches.*	°	°	*Inches*	*Inches.*	
Saugeen, Ont	29.27	29.97	+ .04	61.7	— 1.8	0.90	— 1.13	nw.
Parry Sound, Ont.	29.26	29.94	+ .02	63.6	— 1.4	0.89	— 1.54	w.
Port Arthur, Ont	29.26	29.94	+ .06	59.6	— 3.9	3.01	0.00	nw.
Winnipeg, Man	29.12	29.92	+ .03	64.3	+ 0.3	3.30	+ 0.08	s.
Minnedosa, Man.	28.14	29.89	+ .05	62.6	+ 1.1	3.06	+ 0.52	e.
Qu'Appelle, Assin	27.69	29.88	+ .02	62.6	— 0.4	4.24	+ 1.79	s.
Medicine Hat, Assin.	27.66	29.89	+ .05	64.8	— 2.7	4.86	+ 3.14	w.
Swift Current, Assin	27.40	29.91	+ .01	62.9	— 1.6	3.32	+ 1.29	w.
Calgary, Alberta	26.44	29.90	.00	58.4	— 0.6	4.97	+ 2.39	w.
Prince Albert, Sask.	28.41	29.88	.....	62.9	.....	1.47	.....	e.
Edmonton, Alberta	27.66	29.94	+ .06	60.0	— 0.9	1.87	— 1.23	nw.
Battleford, Sask.	28.18	29.85	.....	63.6	.....	2.86	.....	nw.
Spences Bridge, B. C	29.14	29.93	.....	69.2	.....	0.32	.....	w.
Hamilton, Bermuda	.....	.....	.....	.....	.....	.....	.....	.....
Banff, Alberta	25.43	29.98	.....	53.3	.....	3.26	.....	w.
Esquimalt, B. C.	30.02	30.05	.....	57.7	.....	0.12	.....	s.
Anticosti, Gulf of St. L.	29.79	29.82	— .02	57.8	— 1.6	3.41	.....	s.

TABLE IV.—*Mean temperature for each hour of seventy-fifth meridian time, July, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	74.3	73.5	73.1	72.8	72.2	71.5	71.5	72.4	75.2	77.4	79.8	81.4	83.0	84.7	86.0	86.0	86.6	86.4	85.5	83.3	79.4	77.2	76.0	75.3	78.5
Albany, N. Y.	65.5	65.0	64.4	63.7	63.2	63.7	65.4	67.5	69.4	71.5	73.7	74.6	75.8	77.3	78.0	78.2	77.3	76.0	74.4	71.8	70.2	68.5	67.3	66.2	70.4
Alpena, Mich.	57.3	56.5	55.7	55.1	54.3	54.3	56.8	60.3	63.7	65.8	67.2	68.5	69.0	69.3	69.3	68.8	67.9	67.8	66.9	65.2	63.8	61.8	60.2	58.8	62.7
Amarillo, Tex.	67.9	67.2	66.5	65.5	65.0	64.5	64.5	65.8	67.5	70.1	72.8	74.7	76.8	78.9	79.8	80.1	80.7	80.6	79.6	77.6	74.7	72.2	70.8	69.6	72.2
Atlanta, Ga.	72.8	72.0	71.3	70.8	70.3	70.0	70.4	72.4	74.2	76.4	78.4	80.0	81.6	82.7	82.7	82.9	81.8	81.7	80.6	77.6	76.4	75.3	74.5	73.8	76.3
Augusta, Ga.	74.2	73.5	72.5	71.9	71.4	71.3	73.3	75.9	78.6	81.1	83.3	85.1	85.5	86.3	86.6	86.8	86.4	84.5	82.3	80.2	78.5	77.4	76.2	75.1	79.1
Baker City, Oreg.	61.6	59.6	57.8	56.2	54.4	52.5	51.4	50.9	53.4	58.5	62.8	65.7	68.9	71.8	74.4	76.0	77.5	77.7	77.2	75.6	73.5	70.0	66.7	64.1	64.9
Baltimore, Md.	69.2	68.6	68.1	67.6	67.2	67.2	68.1	70.5	72.6	74.6	76.6	78.2	78.8	79.5	80.0	80.2	78.6	77.5	76.2	74.2	72.8	71.6	70.4	69.6	73.2
Bismarck, N Dak.	62.6	61.1	59.5	58.5	57.4	56.4	57.1	59.5	62.8	67.2	70.0	72.5	74.5	76.1	77.3	78.4	78.1	77.7	76.3	74.4	70.7	67.1	64.7	63.7	67.6
Boston, Mass.	64.9	64.3	64.0	63.7	63.6	64.4	66.2	68.2	70.4	72.1	72.9	73.4	73.8	73.9	73.7	73.0	71.6	71.4	69.9	68.4	67.6	66.8	66.0	65.6	68.7
Buffalo, N Y.	64.8	64.2	63.8	63.0	62.8	63.6	65.1	67.1	68.4	69.2	70.4	71.4	72.0	72.5	72.9	73.1	72.7	71.8	70.8	69.6	68.8	67.6	66.1	65.2	68.2
Charleston, S. C.	77.7	77.2	76.8	76.6	75.8	75.6	77.0	79.3	81.7	83.5	85.4	86.6	86.9	86.4	86.1	85.2	83.9	82.6	80.7	79.6	78.8	78.7	78.2	77.9	80.8
Charlotte, N. C.	71.8	71.3	70.7	70.2	69.7	69.5	69.9	72.5	74.2	76.5	78.5	80.7	82.2	83.0	83.4	84.0	83.5	82.8	80.2	77.6	76.3	74.9	73.6	72.6	76.2
Cheyenne, Wyo.	57.4	56.8	55.5	54.5	53.6	53.7	52.8	54.9	59.1	62.4	65.2	67.5	69.5	70.8	71.4	71.7	71.3	71.2	70.2	69.3	66.3	62.8	60.1	58.3	62.7
Chicago, Ill.	68.7	67.9	67.7	67.3	66.5	66.1	66.3	67.7	69.3	71.0	72.0	72.5	72.8	73.3	73.7	74.2	73.8	73.8	73.1	72.3	70.8	70.5	70.0	69.2	70.4
Cincinnati, Ohio.	72.4	71.6	70.6	69.8	68.9	68.4	68.1	70.3	71.7	74.2	76.4	78.4	79.7	80.4	80.9	81.6	81.3	80.7	80.3	78.9	77.7	76.2	74.7	73.4	75.3
Cleveland, Ohio.	66.4	65.7	65.1	64.1	63.2	63.0	63.9	66.8	69.1	71.2	72.8	73.0	73.5	73.9	74.4	74.5	74.6	75.0	74.4	72.9	71.9	70.5	68.8	67.6	69.8
Columbus, Ohio.	69.0	67.7	66.7	65.8	65.1	64.5	65.4	68.3	71.1	74.6	77.4	79.2	80.8	81.9	82.6	83.0	82.5	81.7	80.1	77.5	75.6	73.5	71.7	70.3	74.0
Denver, Colo.	63.0	61.9	60.7	59.8	59.0	58.4	57.8	58.2	60.7	64.2	67.9	71.2	73.3	75.2	75.7	75.9	76.1	75.6	74.5	73.4	71.4	68.3	66.4	64.3	67.2
Des Moines, Iowa.	68.7	67.5	66.5	65.4	64.6	63.7	63.6	66.1	69.0	72.0	74.8	76.6	77.8	78.8	79.7	80.5	80.8	80.0	79.4	78.6	76.0	73.9	71.8	70.3	72.8
Detroit, Mich.	65.7	65.0	64.2	63.4	62.8	62.3	62.8	65.3	67.9	70.7	73.1	75.4	76.7	77.5	77.5	77.5	77.1	76.9	75.3	72.4	70.7	68.9	67.5	66.5	70.1
Dodge City, Kans.	68.8	68.0	66.9	66.3	65.7	65.6	65.5	67.0	69.5	72.2	75.3	77.9	79.8	80.8	81.9	82.5	82.8	82.6	81.5	79.5	76.1	73.4	71.9	70.1	73.8
Duluth, Minn.																									
Eastport, Me.	54.6	54.6	54.3	54.0	54.2	54.6	55.9	57.7	59.7	61.3	62.2	63.3	64.3	64.5	64.3	63.8	63.0	62.0	60.5	59.4	58.4	57.3	56.4	55.5	59.0
El Paso, Tex.	74.4	73.4	72.3	71.5	70.3	69.5	68.9	69.4	72.0	75.0	77.9	81.2	83.5	85.7	87.4	88.5	89.0	88.3	87.2	85.3	82.9	79.6	77.6	75.6	78.6
Fort Smith, Ark.	73.9	73.3	72.8	72.2	71.8	71.4	72.0	74.8	76.3	78.0	79.8	81.6	82.9	83.3	84.3	84.9	84.6	84.3	83.2	81.2	78.8	77.5	76.0	74.8	78.1
Galveston, Tex.	81.4	81.2	81.5	81.3	81.3	81.2	81.2	81.8	82.6	83.3	83.9	84.6	84.6	84.6	84.7	84.2	83.8	83.6	82.9	82.3	82.3	82.0	81.9	81.6	82.8
Grand Haven, Mich.	63.3	62.4	61.5	60.7	60.4	59.4	60.6	64.0	67.0	69.6	71.5	71.5	71.6	72.2	72.3	72.5	73.1	73.3	72.2	70.5	68.3	66.8	65.4	63.8	67.2
Havre, Mont.	60.7	59.3	58.2	57.0	55.2	54.1	53.6	55.5	59.0	62.2	65.0	68.8	71.4	73.3	75.1	76.5	77.7	77.7	77.2	76.0	74.2	70.3	66.0	63.3	66.2
Helena, Mont.	62.8	61.5	60.2	59.0	58.2	56.7	55.1	55.9	58.1	60.3	62.9	65.5	68.3	70.5	72.6	73.8	74.9	75.2	74.8	73.6	72.1	69.6	66.9	64.6	65.5
Huron, S. Dak.	63.6	61.7	59.8	59.0	57.6	57.5	58.3	62.4	67.7	72.5	76.2	78.6	80.8	82.2	82.8	82.8	82.5	82.2	80.9	79.4	74.9	71.5	68.1	65.9	71.2
Independence, Cal.	77.5	75.5	73.6	72.6	71.2	69.5	68.2	67.6	66.6	68.8	72.8	77.9	82.5	85.3	87.7	89.1	89.8	90.3	90.0	88.7	86.8	84.0	81.2	79.5	79.0
Indianapolis, Ind.	68.7	67.7	66.3	65.4	64.3	63.9	65.5	68.6	72.3	75.1	78.0	79.2	81.1	82.5	83.9	83.5	83.2	82.2	80.3	77.5	75.2	72.8	71.4	70.0	74.1
Jacksonville, Fla.	77.0	76.8	76.5	76.2	75.8	75.6	75.9	78.7	79.5	81.0	83.5	85.0	86.2	85.7	85.2	85.0	83.5	83.1	81.8	79.6	79.1	78.4	77.8	77.4	80.2
Kansas City, Mo.	70.7	70.1	69.1	68.3	67.9	67.5	67.3	68.9	70.5	72.4	74.7	76.6	78.1	79.0	79.8	80.3	80.2	79.2	78.4	77.1	75.3	73.8	72.4	71.5	73.7
Key West, Fla.	81.1	81.2	81.2	80.9	80.8	80.8	82.1	83.5	84.5	85.1	86.2	86.5	86.6	86.5	86.1	85.6	85.4	84.7	83.6	82.9	82.0	81.6	81.3	80.9	83.4
Knoxville, Tenn.	70.9	70.2	69.6	69.1	68.7	68.3	68.8	70.7	72.9	75.6	77.8	79.9	80.4	81.4	82.1	82.3	82.1	81.1	79.7	77.1	75.5	73.8	72.8	71.5	75.1
Lander, Wyo.	60.0	58.0	55.7	54.0	52.4	51.6	50.8	52.5	58.2	63.3	66.7	69.0	70.9	72.7	74.3	75.9	77.0	77.4	76.1	74.4	71.2	66.2	63.8	61.6	64.7
Little Rock, Ark.	74.9	74.3	73.9	73.4	73.0	72.5	72.6	74.1	76.5	78.9	80.5	82.0	82.8	84.2	84.2	84.1	83.5	83.5	82.7	81.3	78.8	77.4	76.3	75.3	78.4
Louisville, Ky.	70.8	70.1	69.7	68.7	67.9	67.7	68.1	70.1	73.0	76.0	78.2	80.4	81.6	81.6	81.4	82.2	82.4	81.2	80.2	78.0	76.0	74.2	72.8	71.7	75.2
Lynchburg, Va.	69.2	68.8	67.7	67.1	66.6	66.8	68.9	71.4	74.1	76.6	78.8	80.7	81.7	81.9	82.2	82.3	81.1	79.4	77.6	75.3	73.8	72.3	70.6	69.8	74.4
Marquette, Mich.	58.9	58.7	58.2	57.5	56.9	57.3	58.8	61.6	63.1	65.4	67.0	67.5	67.6	67.9	67.7	66.8	65.9	65.0	64.5	63.6	62.2	61.5	60.7	60.0	62.7
Memphis, Tenn.	74.7	74.2	73.7	73.4	73.0	72.7	72.7	74.1	74.8	76.3	77.9	79.8	81.3	82.1	82.7	83.3	83.3	82.8	80.6	79.1	77.9	77.2	76.3	75.3	77.5
Milwaukee, Wis.	65.2	64.5	63.4	62.8	62.2	61.8	62.1	65.2	67.3	69.0	70.5	72.0	72.4	72.5	73.0	73.1	73.1	72.3	71.9	70.7	69.5	68.6	67.3	66.3	68.2
Mobile, Ala.	77.6	77.1	76.7	76.1	75.8	75.8	76.2	78.9	80.6	82.8	84.6	85.8	85.5	84.6	84.5	84.5	83.3	83.0	82.2	81.1	80.1	79.3	78.5	78.2	80.5
Montgomery, Ala.	75.6	74.7	74.3	73.7	73.3	73.1	73.8	75.7	77.9	80.4	83.2	85.4	85.9	87.4	86.4	86.4	85.3	85.2	83.8	81.8	80.1	79.0	77.7	76.8	79.9
Moorhead, Minn.	61.1	60.1	59.5	58.1	57.1	56.4	56.5	59.4	62.1	65.6	68.5	70.8	72.6	73.0	74.3	74.1	74.3	73.8	73.0	71.3	68.5	65.5	64.0	62.5	65.9
Nantucket, Mass.	63.7	63.5	63.8	63.6	63.8	65.0	66.2	67.3	67.9	68.5	68.9	69.2	69.6	69.5	69.2	68.3	67.4	66.4	64.8	64.2	63.9	63.8	63.9	63.9	66.1
Nashville, Tenn.	72.8	72.5	71.5	71.1	70.4	70.0	70.3	71.8	73.8	75.9	78.4	80.2	81.1	82.4	83.3	83.6	82.9	82.1	81.1	78.8	77.6	76.0	74.3	73.5	76.5
New Haven, Conn.	64.3	63.9	63.1	62.6	62.3	63.3	65.5	67.7	69.2	70.9	72.5	73.1	73.9	74.5	74.3	74.4	73.5	72.2	70.5	69.0	67.8	66.6	65.7	64.7	68.6
New Orleans, La.	78.1	77.8	77.6	77.4	77.3	77.1	77.6	79.3	81.5	83.2	84.6	85.5	85.5	85.8	85.9	85.5	85.7	84.2	82.6	81.2	80.2	79.5	79.1	78.7	81.3
New York, N. Y.	68.3	67.7	66.8	66.4	65.9	65.8	66.4	67.6	69.5	71.3	72.7	73.7	74.7	74.8	75.5	75.7	75.2	74.3	73.1	72.2	71.2	70.0	69.3	69.8	70.7
Norfolk, Va.	71.5	71.2	71.0	70.8	70.4	70.6	72.0	73.7	75.6	77.4	79.2	80.6	80.9	81.2	81.3	80.1	79.4	77.6	76.1	74.6	73.7	73.1	72.3	71.6	75.2
North Platte, Nebr.	65.6	64.6	63.4	62.2	61.2	60.5	60.1	62.3	64.9	68.1	70.8	73.4	75.7	77.3	78.8	79.9	80.1	79.8	79.1	76.9	74.0	71.2	69.2	67.1	70.3
Omaha, Nebr.	71.6	70.3	68.9	67.7	66.9	66.1	65.6	67.2	68.5	70.8	73.3	75.1	77.0	78.8	80.2	81.3	81.7	81.8	81.5	80.4	78.6	76.2	74.5	73.0	74.0
Parkersburg, W. Va.	67.1	66.2	65.3	64.7	63.6	64.0	66.0	68.9	71.8	74.7	77.2	79.8	81.3	82.3	82.7	82.6	81.8	80.9	79.0	76.1	73.4	71.0	69.1	67.7	73.2
Philadelphia, Pa.	68.0	67.4	66.9	66.4	66.1	66.3	67.5	69.6	71.6	73.3	75.1	76.6	77.9	78.6	79.0	79.1	78.7	77.4	75.8	74.1	72.1	70.8	69.5	68.5	72.3
Pittsburg, Pa.	67.9	66.6	65.9	65.2	64.6	64.2	64.8	67.0	68.7	71.1	73.7	75.4	77.0	77.9	78.7	78.7	78.0	77.0	75.0	73.5	71.6	70.1	69.1	68.1	71.7
Portland, Oreg.	65.0	63.5	61.9	60.6	59.3	58.4	57.2	56.6	56.8	58.1	60.1	62.1	64.5	66.7	68.6	70.5	72.1	73.5	74.4	74.4	73.4	71.6	69.1	67.0	65.2
Rapid City, S. Dak.	64.9	63.4	62.3	61.0	59.9	59.2	59.6	62.6	66.5	69.5	72.1	74.4	76.2	77.9	79.4	80.1	81.1	79.8	79.6	78.2	75.3	71.6	68.7	66.6	70.4
Red Bluff, Cal.	79.8	77.5	75.5	73.6	73.0	70.2	68.5	66.9	68.1	71.3	74.5	77.9	81.5	84.5	87.5	89.8	91.4	92.4	93.1	93.1	91.6	88.7	85.5	82.3	80.7
Rochester, N. Y.	62.4	61.3	60.4	60.0	59.7	60.1	62.0	66.1	68.7	71.1	72.4	73.8	74.8	74.9	75.3	75.4	74.9	73.5	71.5	68.8	67.3	66.1	64.5	63.5	67.8
Roseburg, Oreg.	65.5	63.1	60.7	58.6	57.2	55.7	54.4	53.2	54.2	57.3	59.5	63.1	65.7	69.1	71.8	74.6	76.3	77.9	78.4	77.8	77.0	74.9	72.0	68.5	66.1
St. Louis, Mo.	73.0	72.5	71.5	71.3	70.5	70.0	69.8	71.1	73.0	75.1	77.1	79.0	80.4	80.9	81.7	81.9	81.7	80.7	80.0	78.7	76.9	75.7	74.6	73.7	75.9
St. Paul, Minn.	65.5	64.5	63.4	62.1	60.9	60.2	60.7	63.5	65.6	68.6	71.6	73.8	75.6	77.0	78.1	78.7	79.1	79.0	76.8	75.4	73.0	70.8	68.9	67.2	70.0
Salt Lake City, Utah.	70.2	68.5	67.4	66.9	66.0	64.7	64.5	64.6	66.5	69.3	72.9	76.3	78.1	80.0	81.0	81.4	81.8	81.8	82.3	81.7	80.1	76.1	73.6	72.2	73.7
San Diego, Cal.	63.0	62.9	62.6	62.7	62.5	62.3	62.3	62.3	62.5	63.5	64.8	66.0	66.9	67.5	68.4	68.8	68.7	68.5	68.0	67.6	66.2	64.5	64.0	63.6	65.0
San Francisco, Cal.	55.4	55.3	55.3	55.0	54.7	54.5	54.5	54.4	54.6	55.5	56.6	58.1	59.8	61.0	61.4	61.8	61.9	61.1	60.2	59.3	58.3	57.2	56.2	55.8	57.4
Santa Fe, N. Mex.	61.7	61.1	60.7	59.3	58.8	58.4	57.5	59.0	62.2	64.6	66.3	68.7	70.5	72.4	73.5	74.0	73.4	73.1	71.7	69.9	68.0	65.3	64.3	62.9	65.7
Sault Ste. Marie, Mich.	53.8	53.4	52.7	52.2	51.5	52.0	54.2	56.0	59.7	62.3	65.4	67.4	68.5	68.8	68.4	68.1	67.1	65.7	63.5	61.6	58.7	57.4	55.9	54.8	60.0
Savannah, Ga.	75.7	75.2	74.8	74.3	74.1	74.1	76.1	79.0	81.9	84.9	87.1	87.8	89.0	88.2	87.1	85.0	82.7	81.8	80.4	79.1	78.2	77.5	76.8	76.2	80.3
Seattle, Wash.	61.5	60.4	59.2	58.0	57.2	56.4	55.7	55.4	55.6	56.9	58.3	59.8	61.7	63.5	65.2	66.7	68.4	69.6	70.7	70.9	70.5	67.7	64.9	63.0	62.4
Shreveport, La.	77.2	76.2	75.7	75.3	74.9	74.5	74.7	76.5	78.4	80.7	82.8	84.9	85.5	87.0	87.9	88.7	88.5	87.3	85.3	83.4	81.4	80.1	78.8	77.9	81.0
Spokane, Wash.	66.3	64.4	62.2	60.4	58.8	57.4	56.2	55.8	57.3	59.8	64.4	67.6	70.6	73.4	75.2	76.5	77.4	77.6	77.5	77.4	76.1	75.0	71.8	69.2	67.9
Titusville, Fla.	75.9	75.3	74.9	74.6	73.4	74.7	77.1	80.2	82.3	84.1	85.6	86.7	86.6	86.8	86.1	85.5	84.9	83.4	81.4	79.9	78.5	78.2	77.4	76.5	80.4
Toledo, Ohio.	67.6	66.3	65.0	64.0	63.4	62.5	63.2	66.3	68.5	71.4	74.1	76.4	77.4	78.4	79.4	79.7	78.8	78.1	77.0	74.6	72.9	71.3	69.9	68.6	71.4
Vicksburg, Miss.	77.0	76.0	75.6	75.2	74.7	74.4	74.8	76.6	78.5	80.6	82.5	83.9	85.2	86.5	86.4	86.4	85.8	85.2	84.3	82.5	81.0	79.7	78.7	78.1	80.4
Washington, D. C.	67.3	66.5	65.8	65.4	65.0	65.2	67.1	69.6	72.3	74.6	76.7	77.8	78.9	79.8	80.0	79.7	78.6	77.0	74.9	72.8	71.5	70.0	68.9	67.9	72.2
Williston, N. Dak.	64.8	63.5	62.4	60.7	60.0	59.1	58.2	59.7	62.6	65.2	67.8	70.5	72.8	75.2	77.3	78.1	78.1	77.2	77.0	75.4	73.6	69.8	67.5	65.6	68.4
Wilmington, N. C.	74.3	74.0	73.5	73.3	72.9	72.9	73.5	76.1	77.0	78.7	80.8	82.5	83.1	82.4	82.1	81.4	80.4	79.5	78.2	76.6	75.7	75.3	74.8	74.4	77.2
Winnemucca, Nev.	69.4	67.8	65.3	63.9	62.0	60.4	58.3	55.7	56.7	61.5	67.6	71.5	74.5	77.1	78.9	80.6	81.3	82.5	82.9	82.4	81.5	79.4	75.6	72.2	71.2
Yuma, Ariz.	84.5	82.9	81.8	80.9	79.1	77.1	75.7	75.5	78.7	83.4	88.5	92.6	95.7	98.0	100.0	102.0	103.1	103.4	101.9	100.2	97.6	93.6	89.4	86.5	89.7

TABLE V.—*Mean pressure for each hour of seventy-fifth meridian time, July, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.....	28.210	.211	.211	.209	.212	.220	.232	.243	.252	.256	.257	.255	.248	.235	.215	.190	.182	.171	.165	.166	.176	.189	.203	.207	.214
Albany, N. Y	29.859	.858	.862	.867	.876	.883	.890	.895	.892	.885	.878	.868	.857	.843	.830	.824	.821	.825	.828	.837	.847	.851	.855	.856	.858
Alpena, Mich	29.324	.323	.322	.323	.326	.333	.341	.344	.338	.334	.329	.323	.317	.310	.305	.301	.300	.297	.299	.304	.311	.315	.317	.322	.319
Atlanta, Ga.....	29.886	.879	.876	.877	.881	.889	.901	.912	.918	.919	.918	.913	.901	.886	.873	.861	.856	.854	.856	.869	.879	.891	.892	.891	.887
Augusta, Ga	29.851	.845	.840	.839	.842	.851	.860	.871	.881	.880	.878	.873	.858	.843	.827	.817	.807	.806	.814	.826	.841	.850	.854	.852	.846
Baltimore, Md.....	29.790	.787	.785	.788	.797	.804	.814	.816	.815	.811	.809	.802	.793	.780	.769	.764	.766	.766	.772	.776	.788	.794	.796	.797	.791
Bismarck, N. Dak..	28.201	.199	.205	.205	.209	.215	.225	.232	.236	.232	.228	.222	.213	.205	.195	.187	.177	.167	.164	.164	.168	.180	.202	.202	.201
Boston, Mass	29.808	.806	.805	.810	.820	.826	.833	.835	.831	.829	.824	.818	.808	.802	.792	.790	.790	.792	.796	.805	.813	.811	.809	.807	.811
Buffalo, N. Y.....	29.344	.335	.331	.334	.343	.349	.356	.359	.360	.358	.358	.353	.346	.341	.333	.327	.324	.325	.328	.329	.337	.340	.343	.341	.341
Charleston, S. C ...	30.034	.016	.010	.010	.015	.023	.031	.038	.045	.048	.047	.036	.025	.014	.002	.994	.989	.998	.001	.008	.023	.031	.032	.027	.020
Chicago, Ill	29.130	.126	.123	.128	.135	.143	.152	.157	.161	.160	.161	.159	.155	.146	.135	.127	.119	.111	.113	.116	.123	.131	.132	.134	.137
Cincinnati, Ohio...	29.361	.358	.355	.357	.365	.374	.384	.389	.390	.389	.385	.379	.370	.359	.347	.341	.336	.329	.331	.335	.346	.357	.361	.363	.361
Cleveland, Ohio....	29.206	.204	.204	.209	.219	.229	.239	.245	.245	.243	.242	.235	.230	.218	.209	.204	.197	.194	.195	.197	.199	.201	.204	.206	.215
Columbus, Ohio....	29.147	.144	.137	.142	.148	.161	.170	.175	.177	.175	.168	.159	.146	.134	.124	.114	.110	.108	.112	.116	.125	.134	.143	.146	.142
Denver, Colo.....	24.863	.857	.854	.852	.850	.852	.859	.868	.872	.876	.874	.872	.868	.858	.848	.839	.832	.828	.826	.829	.837	.846	.859	.865	.854
Des Moines, Iowa..	29.083	.086	.087	.087	.093	.102	.115	.118	.121	.121	.120	.117	.107	.099	.089	.079	.065	.061	.056	.057	.058	.071	.079	.082	.090
Detroit, Mich	29.225	.226	.224	.225	.230	.239	.248	.256	.260	.255	.252	.244	.232	.221	.213	.205	.202	.198	.199	.202	.212	.219	.224	.226	.227
Dodge City, Kans..	27.431	.424	.418	.412	.413	.420	.427	.435	.441	.448	.446	.443	.438	.431	.421	.411	.398	.387	.382	.385	.394	.407	.421	.430	.419
Duluth, Minn	29.204	.202	.201	.203	.213	.218	.223	.229	.235	.232	.229	.225	.221	.214	.207	.196	.192	.186	.184	.187	.193	.198	.201	.204	.208
Eastport, Me	29.844	.840	.836	.839	.846	.850	.854	.852	.852	.849	.845	.841	.835	.832	.830	.829	.830	.831	.836	.843	.848	.850	.850	.845	.842
El Paso, Tex.....	26.219	.221	.219	.215	.218	.216	.224	.236	.248	.256	.255	.252	.243	.229	.212	.190	.172	.159	.153	.156	.166	.182	.203	.215	.211
Eureka, Cal.....	29.984	.984	.977	.971	.965	.958	.953	.951	.951	.955	.964	.969	.975	.981	.984	.985	.989	.989	.986	.982	.982	.979	.979	.983	.974
Fort Canby, Wash.	29.917	.916	.913	.911	.907	.905	.904	.905	.909	.915	.919	.923	.922	.923	.924	.922	.923	.921	.916	.910	.910	.911	.914	.918	.915
Galveston, Tex....	30.014	.008	.003	.002	.003	.009	.019	.033	.036	.037	.039	.039	.038	.027	.017	.005	.996	.987	.987	.992	.995	.008	.012	.016	.013
Grand Haven, Mich	29.309	.309	.307	.310	.320	.327	.337	.346	.348	.348	.347	.345	.338	.330	.320	.311	.299	.292	.287	.284	.289	.297	.299	.304	.317
Havre, Mont.....	27.352	.355	.358	.357	.360	.364	.371	.376	.380	.380	.375	.372	.369	.361	.353	.346	.337	.328	.322	.320	.324	.332	.344	.354	.354
Helena, Mont.....	25.885	.888	.893	.892	.893	.897	.903	.908	.911	.910	.906	.902	.895	.886	.873	.861	.852	.844	.840	.841	.847	.859	.877	.885	.881
Huron, S. Dak	28.584	.584	.582	.582	.590	.594	.602	.609	.613	.610	.604	.599	.592	.582	.570	.564	.556	.547	.540	.543	.549	.561	.578	.583	.580
Independence, Cal.	25.978	.985	.991	.994	.998	.002	.007	.014	.023	.033	.038	.037	.027	.013	.998	.981	.968	.952	.939	.927	.927	.935	.950	.968	.982
Indianapolis, Ind..	29.219	.220	.219	.221	.227	.236	.239	.250	.253	.247	.245	.238	.229	.217	.205	.197	.192	.189	.195	.198	.210	.219	.219	.221	.221
Jacksonville, Fla..	30.027	.020	.015	.015	.024	.031	.041	.047	.049	.046	.040	.029	.016	.003	.989	.979	.981	.986	.999	.013	.025	.034	.038	.030	.020
Kansas City, Mo...	29.008	.005	.004	.005	.012	.019	.032	.039	.045	.045	.044	.040	.034	.023	.013	.004	.995	.986	.979	.981	.987	.998	.007	.012	.013
Key West, Fla	30.096	.084	.075	.073	.074	.081	.094	.104	.109	.110	.111	.108	.098	.087	.072	.058	.055	.059	.073	.088	.096	.102	.106	.104	.088
Knoxville, Tenn...	29.023	.020	.015	.012	.017	.028	.041	.055	.058	.056	.053	.049	.039	.027	.015	.004	.995	.991	.993	.992	.999	.019	.024	.026	.024
Little Rock, Ark...	29.691	.681	.671	.674	.679	.691	.706	.718	.727	.735	.735	.728	.709	.696	.685	.672	.665	.657	.659	.666	.678	.692	.698	.697	.691
Louisville, Ky.....	29.463	.458	.457	.457	.465	.476	.486	.493	.492	.491	.493	.489	.477	.470	.459	.450	.443	.439	.439	.440	.448	.460	.465	.468	.466
Lynchburg, Va.....	29.293	.289	.287	.292	.300	.309	.318	.320	.319	.316	.312	.300	.285	.273	.259	.254	.253	.259	.268	.280	.292	.299	.300	.300	.291
Marquette, Mich....	29.185	.180	.178	.181	.186	.190	.197	.200	.201	.197	.197	.196	.195	.186	.182	.181	.181	.182	.181	.180	.183	.186	.187	.187	.187
Memphis, Tenn	29.605	.599	.593	.594	.600	.609	.621	.633	.641	.644	.646	.643	.635	.622	.608	.596	.588	.585	.593	.595	.600	.605	.607	.608	.611
Milwaukee, Wis....	29.289	.290	.291	.293	.300	.314	.321	.325	.330	.326	.323	.318	.309	.299	.290	.278	.268	.264	.264	.265	.270	.278	.283	.284	.295
Moorhead, Minn...	28.949	.951	.952	.953	.962	.967	.980	.981	.982	.975	.973	.969	.961	.952	.945	.936	.929	.925	.921	.927	.929	.938	.943	.941	.952
Nantucket, Mass...	29.955	.948	.948	.949	.955	.964	.970	.975	.973	.973	.968	.964	.959	.952	.945	.940	.939	.941	.945	.949	.957	.959	.958	.955	.956
Nashville, Tenn ...	29.451	.447	.444	.446	.452	.463	.472	.478	.487	.488	.488	.486	.471	.459	.445	.437	.428	.426	.426	.432	.440	.452	.455	.458	.456
New Haven, Conn..	29.838	.834	.833	.838	.845	.854	.860	.861	.858	.855	.852	.841	.832	.822	.813	.808	.807	.812	.817	.824	.835	.837	.837	.838	.835
New Orleans, La...	30.006	.002	.999	.002	.012	.021	.031	.034	.037	.041	.039	.036	.024	.012	.000	.989	.979	.976	.983	.986	.996	.007	.012	.009	.010
New York, N. Y ...	29.636	.631	.628	.630	.635	.641	.653	.654	.652	.652	.649	.642	.634	.626	.619	.614	.611	.613	.618	.624	.633	.638	.640	.640	.634
Norfolk, Va.....	29.931	.925	.923	.925	.934	.944	.953	.958	.961	.960	.956	.951	.942	.931	.921	.915	.912	.917	.925	.931	.938	.941	.943	.939	.936
Omaha, Nebr.....	28.832	.831	.831	.833	.837	.844	.852	.857	.860	.862	.864	.857	.848	.838	.828	.815	.804	.797	.794	.794	.798	.811	.821	.828	.831
Parkersburg, W.Va	29.351	.349	.347	.352	.360	.369	.379	.385	.382	.380	.375	.367	.352	.338	.328	.325	.322	.322	.326	.330	.342	.349	.351	.353	.351
Philadelphia, Pa...	29.853	.849	.848	.851	.856	.863	.870	.877	.874	.872	.868	.862	.851	.842	.830	.823	.821	.827	.833	.839	.849	.856	.861	.860	.851
Pittsburg, Pa	29.129	.128	.128	.128	.131	.137	.146	.153	.154	.150	.145	.140	.132	.121	.108	.101	.099	.101	.105	.107	.116	.120	.125	.127	.126
Portland, Oreg....	29.876	.881	.887	.888	.890	.894	.901	.906	.912	.914	.914	.912	.913	.906	.896	.888	.874	.863	.854	.848	.848	.851	.858	.872	.885
Rochester, N. Y ...	29.415	.412	.411	.412	.418	.427	.435	.437	.436	.433	.428	.422	.415	.408	.400	.394	.392	.392	.394	.399	.406	.418	.419	.412	.413
Roseburg, Oreg....	29.445	.453	.458	.459	.460	.461	.466	.470	.474	.480	.481	.480	.472	.462	.453	.437	.425	.410	.400	.394	.394	.402	.413	.430	.445
St. Louis, Mo	29.420	.415	.412	.416	.423	.434	.444	.455	.456	.455	.455	.453	.446	.433	.424	.411	.405	.399	.401	.403	.408	.417	.423	.424	.426
St. Paul, Minn	29.094	.096	.093	.096	.102	.111	.117	.120	.124	.120	.115	.112	.105	.100	.089	.077	.066	.064	.063	.064	.071	.085	.088	.092	.094
Salt Lake City, Utah	25.631	.633	.632	.632	.635	.639	.647	.658	.669	.675	.680	.681	.676	.669	.652	.644	.631	.623	.611	.605	.605	.607	.620	.626	.641
San Diego, Cal.....	29.899	.899	.893	.884	.877	.876	.877	.883	.893	.902	.908	.909	.912	.911	.906	.899	.890	.881	.871	.868	.869	.875	.886	.894	.890
San Francisco Cal.	29.826	.825	.823	.816	.812	.810	.811	.818	.828	.841	.849	.852	.855	.854	.850	.844	.835	.824	.814	.805	.805	.805	.814	.825	.827
San L. Obispo, Cal.	29.786	.787	.785	.778	.775	.769	.769	.773	.782	.791	.799	.799	.797	.793	.788	.781	.774	.766	.758	.753	.753	.753	.759	.768	.781	.778
Santa Fe, N. Mex..	23.406	.406	.405	.403	.401	.402	.405	.413	.418	.427	.426	.425	.422	.412	.402	.391	.382	.373	.369	.372	.373	.385	.395	.405	.401
S'lt Ste. Marie, Mich	29.279	.278	.277	.276	.280	.284	.288	.294	.290	.287	.282	.278	.271	.268	.263	.262	.260	.260	.263	.267	.275	.277	.277	.277	.276
Savannah, Ga.....	29.952	.944	.939	.941	.950	.960	.973	.982	.985	.985	.981	.974	.956	.941	.922	.916	.911	.912	.923	.931	.943	.952	.957	.955	.949
Seattle, Wash	29.915	.920	.924	.926	.929	.930	.934	.940	.945	.952	.954	.954	.951	.947	.939	.932	.924	.916	.909	.902	.895	.896	.902	.913	.927
Spokane, Wash....	27.974	.981	.985	.987	.991	.995	.001	.010	.020	.026	.025	.020	.016	.008	.994	.984	.972	.967	.961	.958	.958	.963	.967	.974	.989
Tatoosh Isl'd, Wash	29.993	.991	.991	.990	.987	.985	.984	.986	.990	.995	.003	.005	.009	.011	.014	.014	.013	.009	.004	.997	.993	.994	.993	.995	.998
Toledo, Ohio.....	29.283	.281	.285	.288	.298	.309	.318	.327	.328	.323	.316	.306	.296	.285	.274	.265	.258	.255	.257	.259	.271	.279	.282	.285	.289
Vicksburg, Miss ...	29.750	.747	.744	.745	.751	.762	.773	.785	.792	.793	.793	.789	.779	.764	.749	.739	.733	.727	.728	.738	.734	.743	.750	.751	.756
Washington, D. C..	29.878	.876	.873	.874	.881	.887	.894	.897	.899	.899	.899	.894	.885	.874	.864	.859	.854	.857	.862	.867	.877	.883	.883	.883	.879
Wilmington, N. C..	29.947	.942	.938	.940	.947	.954	.963	.967	.969	.970	.967	.960	.945	.939	.927	.922	.921	.925	.932	.943	.953	.957	.955	.951	.947
Yuma, Ariz	29.644	.649	.652	.651	.649	.653	.663	.676	.697	.705	.705	.702	.695	.684	.665	.644	.619	.601	.586	.581	.585	.595	.620	.636	.648

TABLE VI.—*Average wind movement for each hour of seventy-fifth meridian time, July, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Abilene, Tex.	5.7	6.3	6.3	7.1	6.6	6.1	5.0	6.2	7.8	9.6	9.6	9.3	9.7	9.7	9.6	10.3	9.7	9.4	8.5	8.3	6.5	5.7	6.0	5.7	7.7
Albany, N. Y.	5.3	5.0	4.6	4.2	4.5	4.6	5.3	6.7	7.4	8.0	8.2	8.4	7.5	7.6	8.1	8.1	8.2	8.2	7.0	5.7	5.8	6.9	6.0	5.5	6.5
Alpena, Mich.	5.9	6.0	6.2	6.4	6.3	6.3	6.3	7.2	7.5	8.6	9.8	10.3	11.4	11.6	11.7	11.0	10.3	9.9	8.6	7.5	6.7	6.3	6.2	6.6	8.1
Amarillo, Tex.	14.5	13.9	12.5	12.6	12.4	13.0	13.2	12.9	13.7	14.8	15.9	15.9	16.0	15.8	15.8	15.9	15.7	16.0	17.1	16.9	15.1	14.5	14.7	14.7	14.7
Atlanta, Ga.	7.0	7.1	6.9	6.8	6.5	6.5	6.2	6.8	7.0	7.6	7.5	8.5	8.5	9.1	9.8	10.1	10.3	9.7	8.0	8.0	7.6	7.3	7.0	6.7	7.8
Augusta, Ga.	3.7	3.3	2.8	2.5	2.5	2.3	3.0	3.8	4.5	5.2	6.2	6.3	7.3	7.3	7.7	7.5	7.2	7.4	6.5	5.3	4.0	3.2	3.3	3.1	4.8
Baker City, Oreg.	3.4	3.5	3.4	3.7	4.2	4.8	5.1	5.8	5.8	4.8	3.3	3.3	4.3	4.9	5.6	6.1	7.4	7.7	8.5	9.3	9.3	8.1	5.3	3.9	5.5
Baltimore, Md.	4.1	4.3	4.5	4.2	3.8	3.9	4.6	5.6	6.7	6.9	7.4	8.0	8.4	8.3	9.0	9.3	9.3	8.0	6.9	5.6	4.6	4.4	4.5	4.2	6.1
Bismarck, N. Dak.	8.2	8.5	7.3	6.6	6.2	6.0	6.8	6.5	7.6	9.2	11.2	11.8	12.9	13.9	14.2	14.4	13.5	12.7	12.3	11.2	10.0	8.8	8.8	8.6	9.9
Block Island, R. I.	10.4	9.9	9.7	9.7	9.4	9.1	9.2	9.7	10.3	10.1	10.0	10.3	11.0	11.7	11.6	11.9	12.3	11.6	10.0	9.1	9.1	9.5	9.8	10.2	10.2
Boston, Mass.	8.5	8.4	8.5	8.4	7.8	7.4	7.9	7.9	8.6	9.3	10.0	11.3	10.7	11.1	11.7	11.6	10.8	10.0	9.4	9.2	9.3	9.1	9.0	9.1	9.4
Buffalo, N. Y.	7.4	6.5	6.5	6.6	6.3	6.3	6.8	7.9	8.4	8.9	10.2	10.5	11.9	12.3	12.0	12.1	11.2	10.7	9.9	8.3	7.4	6.9	6.9	7.4	8.7
Cairo, Ill.	4.8	4.9	5.0	5.4	5.0	5.0	5.0	5.4	6.2	5.9	6.3	6.5	7.2	7.9	8.3	8.3	8.0	7.8	6.5	5.4	5.4	5.4	4.8	5.2	6.1
Cape Henry, Va.	10.6	10.4	10.4	10.2	10.2	11.4	12.3	12.7	11.9	11.1	11.8	12.4	13.1	11.5	10.4	10.4	10.0	10.1	9.3	8.6	8.6	9.1	9.0	9.9	10.6
Charleston, S. C.	6.6	5.8	5.4	5.0	5.0	4.8	5.4	6.5	6.7	7.5	8.0	8.6	9.5	10.9	10.5	10.7	11.2	10.2	9.4	8.2	7.8	7.5	7.1	6.5	7.7
Charlotte, N. C.	5.1	5.1	5.1	4.9	4.7	4.6	4.7	5.7	6.0	5.8	6.2	6.1	6.5	7.1	7.3	8.2	7.6	6.6	5.5	4.8	5.0	5.1	5.0	5.0	5.7
Chattanooga, Tenn.	4.7	4.3	5.1	4.5	4.4	4.2	4.3	4.1	4.4	5.6	5.9	6.6	7.4	8.3	8.9	8.0	7.7	7.6	6.5	5.4	4.4	3.6	4.4	3.9	5.6
Cheyenne, Wyo.	8.1	8.6	8.5	8.4	7.5	7.4	7.3	7.4	7.9	9.7	10.6	10.6	10.4	10.4	11.1	11.0	11.3	11.6	12.0	11.0	10.3	9.3	8.4	7.5	9.4
Chicago, Ill.	13.2	14.1	15.5	15.2	15.2	14.6	14.4	13.3	13.3	12.6	13.6	13.8	15.2	14.7	15.4	15.5	15.9	15.3	15.1	14.5	13.1	13.1	13.0	13.3	14.3
Cincinnati, Ohio.	4.6	4.7	4.2	4.1	4.0	4.1	4.9	5.5	6.2	6.7	8.2	7.8	8.0	8.7	8.6	8.8	9.2	8.6	7.9	6.4	5.2	4.9	4.2	3.9	6.2
Cleveland, Ohio.	9.8	9.2	9.2	9.5	9.7	9.3	9.5	10.0	9.6	11.0	12.5	12.6	13.2	12.8	11.7	11.7	11.6	9.7	8.3	8.4	8.1	8.6	9.5	9.8	10.2
Columbia, Mo.	4.1	4.1	4.2	3.8	3.9	3.9	4.2	4.5	5.2	6.1	5.7	6.1	6.8	6.7	7.2	6.8	6.8	6.8	6.1	4.8	3.8	4.5	4.0	3.8	5.2
Columbus, Ohio.	3.9	4.2	3.9	3.8	4.1	3.3	3.5	4.5	5.0	5.5	6.4	7.2	7.9	7.7	7.5	7.5	7.2	7.0	6.6	5.6	4.8	4.9	4.7	4.4	5.5
Concordia, Kans.	5.2	4.7	5.0	4.8	3.6	4.0	3.8	4.7	6.2	7.4	7.5	7.6	7.5	8.0	8.3	8.7	8.5	8.5	8.3	7.8	6.4	5.4	5.6	5.5	6.4
Corpus Christi, Tex.	13.6	11.7	9.9	9.4	9.0	8.4	8.1	8.5	10.6	12.9	14.3	15.0	16.6	17.4	18.6	19.7	20.1	20.6	21.2	20.6	19.7	18.5	17.0	14.8	14.8
Davenport, Iowa.	6.2	5.8	5.7	5.5	5.8	6.0	5.3	5.5	5.9	7.7	8.7	9.5	9.1	9.0	9.0	10.0	10.1	9.9	8.7	7.5	6.3	5.2	5.4	6.1	7.2
Denver, Colo.	5.7	5.6	6.1	6.1	5.9	5.6	5.4	5.3	5.1	5.2	5.6	5.9	6.1	6.4	6.9	7.3	7.6	7.9	7.6	7.5	7.5	7.6	6.8	6.0	6.4
Des Moines, Iowa.	4.8	5.0	4.8	4.9	4.5	4.5	4.4	5.2	6.7	7.5	8.0	8.4	9.2	9.7	9.3	9.1	8.6	8.3	7.8	7.1	5.7	4.8	5.5	5.0	6.6
Detroit, Mich.	6.7	7.2	7.0	6.6	6.7	6.9	6.5	6.8	8.1	8.6	9.0	9.6	10.7	10.9	11.0	11.2	10.7	10.6	9.5	7.7	7.3	6.5	6.7	6.5	8.3
Dodge City, Kans.	9.4	9.4	9.3	9.1	8.1	7.8	7.0	7.2	8.8	10.4	11.3	11.7	12.5	13.0	13.3	13.2	13.1	12.9	12.8	11.5	9.4	8.9	9.9	10.0	10.4
Duluth, Minn.	7.7	8.2	7.6	7.3	6.9	6.8	6.1	7.4	7.9	9.0	10.1	10.6	10.5	10.3	10.2	10.7	10.4	9.9	8.1	7.2	6.9	7.9	8.8	8.1	8.5
Eastport, Me.	6.6	6.4	6.2	6.0	5.6	5.1	5.1	5.8	6.1	6.6	7.2	7.6	8.0	8.9	9.3	8.8	8.5	7.2	6.3	6.1	5.9	5.9	6.3	6.8	6.8
El Paso, Tex.	10.0	10.9	10.3	11.0	10.1	9.9	9.6	9.7	9.1	8.8	9.2	8.6	8.2	7.9	7.3	7.8	8.8	8.8	8.6	9.6	10.1	10.6	10.2	9.2	9.6
Erie Pa.	7.8	8.0	7.9	8.1	8.4	8.4	8.5	8.4	8.6	9.0	9.2	9.5	10.3	10.2	9.8	9.7	9.1	8.5	7.2	6.6	6.8	7.2	7.6	7.9	8.4
Eureka, Cal.	5.3	4.9	4.7	3.9	3.5	4.0	3.7	3.7	3.6	3.6	3.9	4.6	5.8	8.0	8.6	9.4	10.3	10.4	10.7	10.0	9.5	8.7	6.9	6.3	6.4
Fort Canby, Wash.	8.5	8.2	7.8	7.7	7.5	7.6	8.4	8.5	8.1	7.9	8.1	8.2	8.1	8.5	9.1	9.8	10.4	11.1	10.7	10.7	11.0	9.9	9.1	9.4	8.9
Fort Smith, Ark.	5.0	4.3	4.3	4.5	4.3	4.2	4.4	5.0	5.0	4.4	5.4	5.7	6.6	7.2	6.5	6.4	6.6	6.4	5.3	5.3	4.8	4.8	4.9	4.9	5.3
Fresno, Cal.	11.0	10.8	10.1	8.9	7.5	7.3	6.5	5.9	5.5	5.4	5.2	5.1	5.5	5.5	5.3	5.5	6.1	6.5	7.2	7.5	8.3	9.7	9.5	10.7	7.4
Galveston, Tex.	9.6	9.7	9.5	9.1	8.7	8.3	7.5	7.8	8.9	9.5	10.4	10.1	10.8	11.5	12.0	12.2	12.4	12.1	11.7	10.6	9.7	9.5	9.4	9.0	10.0
Grand Haven, Mich.	6.1	6.2	6.1	6.2	6.4	6.7	6.9	8.2	9.3	9.4	9.7	10.1	11.4	11.3	11.7	11.2	10.1	9.0	7.2	5.9	5.9	6.9	5.9	6.0	8.1
Green Bay, Wis.	5.0	5.1	5.1	5.1	5.5	5.5	5.0	5.6	6.7	7.7	7.9	8.5	9.1	9.2	8.6	9.1	9.4	9.0	8.4	7.3	6.8	6.3	5.6	4.8	6.9
Hannibal, Mo.	6.5	6.2	5.9	6.1	5.3	5.1	5.0	5.4	6.9	8.0	9.0	8.8	8.9	9.4	9.4	10.2	9.2	9.4	7.7	6.6	5.7	5.8	6.9	6.6	7.2
Harrisburg, Pa.	4.4	4.3	4.4	4.0	3.9	3.6	4.1	4.8	5.2	5.9	6.5	6.6	7.7	8.1	8.5	8.8	8.9	8.2	7.3	5.9	5.2	4.8	4.3	4.1	5.8
Hatteras, N. C.	11.5	11.6	12.3	12.4	12.3	12.2	11.8	11.9	12.1	12.0	12.2	12.5	12.9	13.0	13.5	13.2	13.0	12.5	11.4	11.3	11.0	11.2	10.6	10.9	12.1
Havre, Mont.	6.1	6.1	5.4	5.3	5.4	5.7	6.2	5.5	5.9	7.4	8.9	8.9	9.1	9.3	10.1	9.6	9.3	9.1	9.2	9.1	7.5	6.9	5.8	5.1	7.4
Helena, Mont.	8.7	9.3	9.2	8.9	8.1	6.9	7.0	6.9	4.5	4.1	4.9	6.1	7.1	7.3	8.4	10.0	11.1	10.7	10.8	10.2	10.3	9.4	7.8	8.1	8.1
Huron, S. Dak.	11.1	10.6	9.5	10.2	10.1	8.7	8.4	9.4	10.9	13.5	14.9	16.1	16.4	17.5	17.7	17.4	18.4	17.8	16.7	15.9	13.9	12.3	11.4	10.7	13.3
Idaho Falls, Idaho.	8.5	6.7	6.2	5.9	5.7	5.9	6.0	5.5	4.8	5.7	7.0	8.0	8.5	9.1	10.9	11.4	12.7	13.8	13.9	14.0	13.4	11.0	9.6	9.5	8.9
Independence, Cal.	8.4	7.4	6.6	6.4	6.0	5.6	5.7	6.2	6.0	6.1	7.1	7.7	8.0	7.7	8.1	9.7	11.2	11.5	10.7	10.7	11.9	10.2	9.5	9.1	8.2
Indianapolis, Ind.	3.2	3.4	3.1	2.8	3.5	3.8	3.2	4.3	4.8	5.5	6.3	6.8	7.1	7.1	7.1	6.6	6.9	6.2	6.3	5.8	5.1	4.5	4.5	3.5	5.1
Jacksonville, Fla.	6.3	6.0	6.1	5.8	6.2	5.8	5.6	6.2	6.9	7.7	7.9	8.6	8.6	9.6	8.9	9.0	8.7	8.1	8.3	7.3	7.3	7.0	7.7	6.7	7.3
Jupiter, Fla.	5.1	4.6	4.4	3.9	4.1	4.5	4.5	5.2	6.7	7.7	8.9	9.6	10.8	11.1	11.6	10.8	10.7	9.9	8.1	7.3	6.6	6.6	5.8	5.3	7.2
Kansas City, Mo.	6.1	6.6	6.3	6.4	6.3	6.7	6.6	7.5	7.2	7.7	7.7	8.5	9.8	9.4	9.8	10.1	9.3	8.9	8.2	7.5	6.9	6.6	7.0	6.5	7.7
Keokuk, Iowa.	4.5	4.3	4.2	4.0	4.3	4.5	4.5	5.4	5.6	6.7	7.2	7.2	7.5	8.4	8.8	8.7	8.9	8.2	7.5	6.7	5.5	4.7	4.9	5.1	6.1
Key West, Fla.	5.4	5.4	5.4	5.1	5.2	5.0	5.3	6.4	6.9	7.3	7.5	7.7	8.1	7.4	7.4	7.5	7.0	6.3	6.3	6.0	5.8	5.2	5.5	5.1	6.3
Kittyhawk, N. C.	11.6	11.6	11.3	12.5	12.0	11.6	12.3	12.7	13.0	13.5	13.5	13.7	14.9	13.6	13.7	13.8	13.1	13.2	14.0	13.5	13.2	13.0	11.8	11.2	12.8
Knoxville, Tenn.	2.9	2.5	2.2	2.6	2.6	2.9	3.1	3.8	4.9	5.5	5.6	5.9	6.7	6.3	6.4	7.0	6.8	6.5	5.5	3.8	2.9	2.8	2.4	2.5	4.3
La Crosse, Wis.	3.3	3.3	3.7	3.7	3.6	3.6	3.6	4.0	4.5	4.7	5.3	5.5	6.4	7.2	7.6	8.4	8.1	7.9	6.5	5.3	3.8	4.2	3.9	3.5	5.1
Lander, Wyo.	4.0	3.7	3.3	2.4	2.4	2.3	2.3	2.0	1.7	2.6	2.9	2.7	3.8	4.7	4.9	6.1	7.1	6.7	7.9	8.2	7.8	5.5	4.7	4.1	4.3
Lexington, Ky.	7.3	7.2	7.3	7.7	8.0	7.9	7.8	7.8	8.4	9.1	9.1	8.9	10.4	10.0	10.8	10.3	10.2	10.0	9.1	7.8	7.5	8.0	7.6	7.1	8.6
Little Rock, Ark.	4.1	4.4	4.8	4.2	3.9	3.7	3.5	4.0	4.9	6.0	6.4	6.6	7.0	6.8	7.2	8.2	8.0	7.9	6.5	6.3	5.8	5.2	5.0	4.2	5.6
Los Angeles, Cal.	1.5	1.3	1.2	1.3	1.3	1.4	1.5	1.3	1.3	1.6	1.8	1.8	2.4	3.3	4.1	5.4	6.9	7.4	6.9	7.0	5.5	4.8	3.5	2.4	3.2
Louisville, Ky.	3.7	4.1	4.0	4.1	4.5	4.5	4.9	5.1	5.5	6.2	6.9	7.1	7.5	8.7	8.5	8.7	8.0	8.0	6.8	5.2	4.8	4.8	4.3	3.9	5.8
Lynchburg, Va.	1.4	1.3	1.3	1.4	1.3	1.6	1.6	2.7	3.1	3.8	4.4	4.6	4.6	4.9	5.2	5.2	4.8	4.6	3.7	2.8	2.2	1.8	1.9	1.5	3.0
Marquette, Mich.	8.5	8.5	8.9	7.3	7.5	7.4	7.3	7.7	9.0	8.8	9.5	10.0	10.1	10.7	10.9	10.7	10.5	8.9	7.3	6.6	5.8	7.5	8.7	8.9	8.6
Memphis, Tenn.	7.7	7.1	6.8	5.8	5.8	6.5	6.5	6.5	7.3	7.3	7.3	7.8	8.0	8.3	8.3	7.6	7.4	7.0	7.9	6.8	6.7	7.2	7.2	7.3	7.2
Meridian, Miss.	2.5	2.6	2.5	2.4	2.4	2.5	2.4	3.5	4.9	5.8	6.4	6.7	6.8	7.3	7.3	7.1	7.2	7.0	6.5	4.3	3.1	2.9	2.4	2.5	4.5
Miles City, Mont.	6.2	5.9	6.3	5.1	4.8	4.9	5.3	5.3	5.6	6.5	6.7	8.2	9.8	9.3	9.2	9.5	9.5	8.3	9.3	9.3	8.6	7.5	6.4	6.7	7.3
Milwaukee, Wis.	6.6	6.7	7.5	7.4	7.2	7.1	7.1	7.5	7.8	8.5	9.8	11.0	11.8	11.6	11.8	11.6	10.5	9.7	8.9	7.9	7.1	6.3	6.7	6.9	8.5
Mobile, Ala.	4.1	4.3	4.1	4.6	4.6	4.6	4.6	5.2	6.2	6.7	7.1	7.9	8.3	9.8	10.4	11.2	11.0	9.3	8.0	6.5	5.4	5.4	5.3	4.5	6.6
Montgomery, Ala.	4.0	3.5	3.6	3.3	3.4	3.4	3.7	4.5	5.3	5.8	6.3	6.7	7.5	7.6	8.4	8.0	8.6	7.4	6.3	5.2	4.3	4.5	4.2	3.9	5.4
Moorhead, Minn.	8.4	8.1	8.2	8.1	7.8	8.4	8.1	7.9	8.4	9.3	9.8	9.9	9.7	10.3	10.3	10.8	10.7	10.8	9.2	8.2	7.2	7.5	8.5	8.5	8.9
Nantucket, Mass.	7.1	7.1	7.5	7.5	7.6	7.9	8.0	8.6	8.7	9.1	9.4	9.9	10.1	10.4	10.0	9.5	8.5	7.6	6.5	6.0	6.5	6.4	6.2	6.7	8.0
Nashville, Tenn.	3.9	3.8	3.5	3.5	3.8	3.8	3.8	4.2	5.4	6.2	6.7	7.0	7.5	7.7	8.0	7.9	7.4	7.3	6.9	5.7	4.8	4.7	4.6	4.0	5.5
New Haven, Conn.	5.1	5.0	5.2	4.9	4.6	4.5	4.7	6.0	6.9	8.0	8.2	8.6	9.7	9.7	9.0	8.4	7.9	7.5	6.3	5.7	5.8	5.3	5.5	5.0	6.6
New London, Conn.	4.3	4.5	4.8	4.9	4.9	4.7	5.7	6.2	6.6	7.9	9.3	9.0	9.8	10.0	9.2	8.6	7.5	6.9	5.4	4.3	4.3	4.4	3.8	4.3	6.3
New Orleans, La.	5.5	5.6	5.1	5.5	5.0	4.6	4.4	5.1	6.7	8.1	8.4	7.9	7.8	8.5	8.9	9.0	9.2	8.2	8.3	7.5	6.5	6.2	6.1	5.9	6.8
New York, N. Y.	9.9	9.7	10.2	10.2	10.2	9.7	9.4	9.9	10.2	10.1	10.5	11.1	12.3	12.8	12.4	12.1	12.1	12.0	11.8	12.2	12.4	12.2	12.7	11.3	10.9	11.1
Norfolk, Va.	6.7	6.2	6.4	6.1	5.8	6.3	6.9	7.6	7.7	8.3	8.2	8.6	8.3	8.0	7.8	8.1	7.5	7.7	6.9	6.0	5.8	6.2	5.9	6.5	7.1
Northfield, Vt.	6.3	6.4	5.5	5.6	5.7	5.4	5.2	6.4	7.7	9.1	10.8	10.5	10.5	10.6	11.1	11.0	10.4	9.9	7.6	5.9	5.7	6.8	6.9	7.5	7.8
North Platte, Nebr.	6.5	6.8	6.1	5.8	5.4	4.9	4.6	4.3	6.0	7.8	8.9	9.5	10.2	11.0	11.4	11.9	11.5	11.4	10.0	9.3	7.4	6.6	7.7	7.1	8.0
Oklahoma, Okla.	5.9	6.3	6.6	6.8	6.2	5.9	6.4	7.5	7.7	8.5	8.2	8.4	8.7	8.6	9.0	9.4	9.2	9.5	9.6	9.2	7.2	6.8	6.5	6.1	7.7
Omaha, Nebr.	6.1	5.6	5.4	5.2	5.0	5.3	5.3	5.8	6.6	7.5	7.8	8.4	8.9	8.4	8.7	8.5	8.8	8.9	8.5	7.8	6.5	5.8	5.5	5.7	6.9
Oswego, N. Y.	7.4	8.2	7.8	7.6	7.3	7.6	7.7	9.0	9.3	9.9	10.1	10.0	10.5	10.1	10.0	9.8	9.3	8.5	7.6	7.5	7.3	7.3	7.5	8.0	8.5
Palestine, Tex.	5.9	5.8	5.8	5.3	5.0	4.7	4.8	5.1	6.5	7.4	7.4	7.3	6.9	7.1	7.1	7.1	6.8	6.2	5.5	4.6	3.6	4.5	4.9	5.5	5.9

TABLE VI.—*Average wind movement, etc.*—Continued.

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midnight.	Mean.
Parkersburg, W. Va.	2.4	2.3	2.4	2.4	2.4	2.4	2.1	2.8	3.7	3.6	4.1	4.5	5.2	5.9	6.2	6.5	6.2	5.6	4.5	4.1	3.3	2.7	2.7	2.5	3.8
Pensacola, Fla.	6.8	6.8	6.7	5.8	5.3	5.2	4.6	5.4	6.6	7.1	8.0	8.7	9.9	11.9	13.4	14.3	12.9	12.0	10.5	9.2	7.2	7.2	6.6	6.3	8.3
Philadelphia, Pa.	7.6	7.4	7.7	8.3	8.0	7.7	7.4	8.6	9.0	9.3	9.4	9.9	10.4	11.2	11.0	11.1	11.0	10.0	9.0	8.5	8.4	8.4	8.8	8.2	9.0
Pierre, S. Dak.	10.0	9.4	7.2	7.5	8.1	7.9	7.1	6.4	7.3	8.9	10.2	11.0	13.1	13.4	13.5	14.0	13.6	13.8	13.9	13.9	13.9	12.1	11.1	10.8	10.8
Pittsburg, Pa.	4.1	3.7	3.2	3.3	3.3	3.4	3.6	4.1	5.2	5.7	6.4	6.7	6.6	7.4	7.6	7.9	7.6	6.9	6.4	5.7	6.0	5.6	5.0	4.4	5.4
Port Angeles, Wash.	6.0	5.8	5.6	5.5	5.3	4.9	4.9	5.1	4.8	4.0	5.1	6.1	6.9	6.7	7.8	7.9	8.6	9.3	10.2	10.5	10.3	8.6	6.7	6.5	6.8
Port Huron, Mich.	8.0	7.8	7.9	7.5	7.4	7.6	7.5	7.6	9.0	9.6	10.3	10.8	11.5	11.8	11.6	12.0	12.0	11.4	9.5	8.3	7.4	7.6	7.5	6.9	9.1
Portland, Me.	4.5	4.8	4.6	4.7	4.5	4.7	5.2	5.9	6.4	7.5	9.1	9.8	10.2	10.2	10.7	10.0	9.5	8.2	7.1	6.4	5.7	5.8	5.5	4.6	6.9
Portland, Oreg.	9.3	9.1	8.5	8.6	8.6	7.5	6.9	6.5	6.3	6.9	7.4	8.0	8.0	8.3	9.0	9.0	9.4	9.6	9.8	10.6	10.8	10.8	10.5	9.9	8.7
Pueblo, Colo.	6.5	5.8	5.7	4.9	4.1	4.0	3.7	4.0	3.6	4.8	6.3	6.4	6.3	6.8	8.0	8.6	8.9	9.5	10.3	9.5	7.8	7.5	7.7	7.1	6.6
Raleigh, N. C.	4.4	3.9	3.8	3.9	3.7	3.7	3.9	4.6	5.5	5.7	5.6	5.5	5.4	5.4	5.8	5.5	5.4	4.4	3.4	3.1	3.9	4.8	3.6	3.6	4.5
Rapid City, S. Dak.	8.5	8.4	9.2	8.4	7.9	8.0	7.0	7.8	9.5	11.8	12.6	13.2	14.0	14.1	13.5	12.5	11.9	12.2	11.8	10.5	9.3	6.7	7.3	8.3	10.2
Red Bluff, Cal.	6.8	6.8	6.5	5.7	5.1	4.5	4.3	3.7	3.7	4.4	5.3	5.1	5.2	5.8	6.0	6.3	6.5	6.9	7.2	7.1	6.9	7.5	6.9	6.9	5.9
Rochester, N. Y.	4.7	4.9	5.1	5.2	5.0	5.0	5.5	6.3	6.8	7.7	8.6	8.8	9.6	9.3	9.3	8.8	8.8	7.5	6.0	4.5	4.5	4.5	4.9	4.8	6.5
Roseburg, Oreg.	3.6	2.7	2.1	1.9	2.2	2.1	2.1	1.9	1.8	2.2	3.1	3.8	4.4	4.8	5.6	6.2	7.5	8.4	9.1	9.9	9.9	9.2	7.2	5.1	4.9
Sacramento, Cal.	9.9	10.5	10.5	10.8	10.7	10.2	9.6	9.3	8.6	8.6	8.6	7.8	7.9	8.1	8.8	9.7	10.3	11.2	11.7	12.1	12.1	11.5	11.0	10.6	10.0
St. Louis, Mo.	7.7	7.7	8.2	7.0	6.6	6.6	7.1	7.7	8.4	9.0	9.6	10.1	10.6	11.3	11.4	11.0	10.8	10.8	9.5	9.4	9.0	8.5	7.9	7.4	8.9
St. Paul, Minn.	3.6	3.8	4.2	4.1	4.2	4.4	5.1	5.3	6.0	7.2	7.9	8.0	9.0	9.3	9.0	9.0	9.0	9.0	8.3	7.0	5.3	4.5	4.3	3.8	6.3
St. Vincent, Minn.	5.4	5.5	5.3	5.2	5.4	5.5	5.4	5.5	6.4	7.2	7.5	8.1	7.9	8.5	8.5	8.5	8.5	7.6	6.9	6.0	5.3	5.4	5.3	5.4	6.5
Salt Lake City, Utah.	5.1	4.3	4.2	4.2	4.5	4.5	4.1	4.5	4.2	4.3	4.1	5.3	6.4	7.4	8.3	9.0	9.4	9.8	8.4	6.9	6.5	6.5	6.2	6.0	6.0
San Antonio, Tex.	10.1	8.5	7.6	6.4	6.0	5.3	4.6	4.4	6.8	9.2	9.2	9.2	9.3	9.4	9.8	9.7	9.9	10.8	11.3	13.5	14.6	14.7	13.9	12.3	9.4
San Diego, Cal.	3.4	2.7	3.0	3.1	3.0	2.8	2.8	2.7	2.8	3.1	4.1	5.4	7.7	9.2	9.9	10.3	10.6	10.2	9.7	8.9	9.1	6.6	5.1	4.3	5.8
Sandusky, Ohio	6.6	6.3	6.2	6.9	6.6	6.7	7.2	6.7	7.0	7.5	7.5	8.1	8.4	8.4	8.1	8.2	8.2	8.6	7.7	7.0	7.1	7.3	8.1	7.2	7.4
San Francisco, Cal.	14.5	13.8	12.6	11.2	11.2	10.1	9.9	9.9	9.5	9.5	10.2	10.5	11.9	14.1	17.1	20.5	22.7	23.6	24.1	24.7	23.2	21.6	18.3	16.3	15.5
San Luis Obispo, Cal.	2.7	2.8	2.7	2.5	2.8	3.0	2.6	3.0	2.6	2.9	3.5	3.9	4.6	5.8	7.0	8.0	8.2	8.1	7.9	7.6	6.7	5.5	4.1	3.5	4.7
Santa Fe, N. Mex.	4.5	4.0	4.6	4.0	4.2	4.4	4.3	3.7	4.2	4.9	5.9	6.6	7.3	8.1	8.8	8.7	8.3	9.0	9.4	9.8	8.4	7.6	5.2	4.6	6.3
Sault Ste Marie, Mich.	4.7	5.1	4.8	4.6	4.7	4.6	4.9	5.8	6.2	7.8	9.1	10.2	10.6	12.1	13.0	12.5	11.9	10.9	9.5	7.9	6.8	6.2	5.8	5.2	7.7
Savannah, Ga.	5.9	5.2	4.9	4.8	5.0	5.0	5.2	5.8	6.4	6.3	6.2	6.8	7.8	8.4	8.7	10.2	9.1	8.9	8.0	7.0	6.4	6.4	6.1	6.0	6.7
Seattle, Wash.	3.6	2.9	2.9	3.3	2.6	3.1	3.4	3.1	3.3	3.6	4.2	4.7	5.3	6.1	6.5	6.5	7.0	6.7	6.8	6.7	5.7	5.6	5.3	4.4	4.7
Shreveport, La.	4.3	4.9	3.9	3.6	4.0	4.0	3.8	4.2	5.6	6.8	6.6	6.2	6.6	6.2	6.5	6.8	6.4	5.9	5.5	4.5	4.8	5.2	5.0	5.0	5.3
Sioux City, Iowa	7.2	7.5	7.9	7.5	7.1	7.1	6.8	7.1	7.5	8.4	10.2	11.3	11.5	11.5	11.3	11.6	11.6	11.7	11.4	9.8	7.9	8.4	8.7	8.0	9.1
Spokane, Wash.	4.9	5.0	4.4	4.2	4.2	4.0	4.3	4.3	5.4	5.9	6.5	7.1	7.4	7.7	8.3	9.1	8.5	8.8	8.1	8.9	7.7	5.7	4.6	6.4	
Springfield, Ill.	6.5	6.2	5.9	6.6	6.9	6.1	6.0	6.6	7.0	7.7	8.2	8.9	9.6	9.2	9.3	8.9	8.7	8.3	6.3	5.6	5.9	6.4	6.1	6.4	
Springfield, Mo.	7.5	7.0	6.8	6.8	6.5	6.4	6.7	7.4	8.4	9.4	9.0	8.8	9.4	10.0	10.6	10.3	9.5	8.8	8.3	8.2	7.6	7.0	7.1	7.3	8.1
Tampa, Fla.	3.8	3.7	3.8	3.8	3.7	3.6	3.7	4.4	5.5	6.2	7.1	7.6	7.4	7.6	7.6	8.6	7.9	7.3	7.0	5.5	4.6	3.6	3.3	3.4	5.4
Tatoosh Island, Wash.	8.0	7.9	7.8	8.0	7.8	7.9	7.7	8.2	8.0	7.6	7.8	7.9	7.9	8.1	8.1	8.4	8.5	8.3	8.5	8.3	8.7	8.2	8.4	8.1	
Titusville, Fla.	7.4	6.9	6.1	6.3	5.8	5.5	6.4	7.1	8.8	9.5	10.2	10.6	11.3	12.7	13.0	13.6	12.5	12.2	11.1	10.8	9.6	8.7	7.8	6.9	9.2
Toledo, Ohio.	6.5	7.2	6.8	5.8	6.1	6.0	6.3	6.5	7.6	8.3	9.1	10.0	9.9	10.2	10.4	11.0	11.0	10.6	9.1	8.1	7.0	6.9	7.0	6.6	8.1
Tucson, Ariz.																									
Vicksburg, Miss.	5.6	5.4	5.5	5.6	5.4	5.2	5.6	5.3	6.3	6.6	6.7	6.5	6.6	7.0	7.5	7.6	7.5	6.8	5.9	5.2	4.5	4.5	5.2	5.3	6.0
Vineyard Haven, Mass	5.5	5.8	5.7	5.1	4.9	5.2	6.0	6.9	7.0	7.4	7.4	8.5	8.8	8.9	8.8	8.5	8.2	7.1	6.2	6.0	5.8	5.4	5.2	5.7	6.7
Walla Walla, Wash.	6.6	6.1	5.4	5.8	5.6	5.2	5.1	5.2	4.7	5.1	6.1	6.4	6.5	6.6	7.0	7.1	7.8	8.3	8.4	7.9	6.8	6.5	5.8	6.3	6.3
Washington, D. C.	2.9	2.9	3.1	3.3	3.3	3.0	3.2	4.9	5.9	6.2	6.8	7.4	7.8	7.9	7.5	7.2	6.5	6.3	4.7	4.1	3.4	2.9	3.5	3.0	4.9
Wichita, Kans.	5.6	5.8	6.0	6.4	6.7	6.5	6.3	6.2	6.9	7.8	8.4	8.5	8.2	8.1	8.7	9.0	8.9	8.4	7.7	6.8	5.6	5.8	5.8	5.7	7.1
Williston, N. Dak.	7.5	7.3	5.8	6.2	6.5	6.1	5.7	6.0	7.4	8.0	8.7	10.5	11.5	12.0	12.3	12.5	12.2	12.4	12.4	11.4	9.5	8.2	8.3	7.8	9.0
Wilmington, N. C.	6.2	6.2	5.7	5.9	5.4	5.4	6.0	7.0	7.7	8.3	8.5	8.6	9.7	10.5	10.7	10.6	9.9	9.2	7.8	7.2	6.6	6.4	6.5	6.2	7.6*
Winnemucca, Nev.	8.0	9.9	9.5	9.0	8.7	8.4	8.4	7.9	7.2	7.0	8.3	8.9	8.5	9.4	9.9	10.4	11.5	11.8	12.0	11.7	11.0	9.1	7.4	7.4	9.2
Woods Holl, Mass.	10.9	11.7	11.2	9.9	10.2	10.2	10.7	11.2	10.6	11.2	11.7	12.8	14.1	14.8	14.2	13.2	12.5	11.7	11.1	11.1	10.4	10.5	9.6	11.1	11.5
Yuma, Ariz.	6.6	5.1	5.1	4.5	4.4	4.3	4.7	4.5	4.2	5.1	6.5	7.0	7.6	8.0	8.1	8.3	8.3	8.6	9.2	8.8	8.7	8.5	7.6	6.8	

TABLE VII.—*Heights of rivers above low-water mark, July, 1895.*

Stations.	Distance to mouth of river.	Danger-point on gauge.	Highest water.		Lowest water.		Me'nstage.	Monthly range.
			Height.	Date.	Height.	Date.		
Mississippi River.	*Miles.*	*Feet.*	*Feet.*		*Feet.*		*Feet.*	*Feet*
St. Paul, Minn.	2,057	14.0	3.8	2	1.5	29,31	2.5	2.3
La Crosse, Wis.	1,867	10.0	5.0	1,2	3.4	30,31	4.0	1.6
Dubuque, Iowa.	1,759	15.0	5.2	1	2.9	18-21,30,31	3.6	2.3
Davenport, Iowa.	1,653	15.0	4.0	1	1.8	22,23	2.6	2.2
Keokuk, Iowa.	1,523	14.0	4.2	1	1.9	26	2.8	2.3
Hannibal, Mo.	1,462	17.0	4.7	1	2.4	27	3.4	2.3
St. Louis, Mo.	1,321	30.0	17.1	8	11.7	19	13.3	5.4
Memphis, Tenn.	910	33.0	11.6	14	6.1	2	8.2	5.5
Helena, Ark.	834	37.0	17.0	15	10.3	3,4	13.0	6.7
Arkansas City, Ark.	702	42.0	22.0	18	11.2	6	16.9	10.8
Greenville, Miss.	662	40.0	18.1	18	9.3	6	13.6	8.8
Vicksburg, Miss.	541	41.0	19.1	20	9.3	7,8	14.1	9.8
New Orleans, La.	108	13.0	5.5	21	3.7	8-11	4.5	1.8
Illinois River.								
Beardstown, Ill.	76	12.0	7.5	29,30	6.3	1-7, 13-17	6.7	1.2
Missouri River.								
Pierre, S. Dak.	1,132	13.0	6.6	9	4.3	31	5.5	2.3
Sioux City, Iowa.	802	18.7	11.9	12	8.0	24	9.9	3.9
Omaha, Nebr.	667	18.0	11.5	8	9.7	28,29	10.4	1.8
Kansas City, Mo.	386	21.0	15.4	16	11.4	28	13.6	4.0
Ohio River.								
Parkersburg, W. Va.	786	38.0	5.4	11	2.2	21-29	3.2	3.2
Catlettsburg, Ky.	652	50.0	10.7	27	1.9	1	5.8	8.8
Cincinnati, Ohio.	500	45.0	12.4	28,29	4.6	1	7.5	7.8
Louisville, Ky.	368	24.0	7.3	29	3.5	1-5	4.9	3.8
Evansville, Ind.	184	30.0	9.1	28	2.6	2,3	4.9	6.5
Paducah, Ky.	47	40.0	7.5	13	2.6	3,4	5.1	4.9
Cairo, Ill.	1,140*	40.0	18.7	11,12	12.1	1	14.8	6.6
Monongahela River.								
Pittsburg, Pa.	966†	22.0	6.7	7	5.2	1	5.9	1.5
Great Kanawha River.								
Charleston, W. Va.	61	30.0	6.8	26,27	4.5	21,22	5.2	2.3
Scioto River.								
Circleville, Ohio.	65	13.0	0.9	1-21	0.8	22-31	0.9	0.1
Big Sandy River.								
Louisa, Ky.	26	.....	22.5	26	3.0	21	6.3	19.5
Wabash River.								
Mount Carmel, Ill.	50	15.0	1.5	29	0.7	5-7, 17-23	0.9	0.8
Cumberland River.								
Burnside, Ky.	404	50.0	10.0	27	0.9	1	2.9	9.1
Nashville, Tenn.	145	40.0	9.0	31	3.0	1,2	5.2	6.0
Tennessee River.								
Knoxville, Tenn.	640	20.0	.....	.....	.....	.....	.....	.....
Chattanooga, Tenn.	455	33.0	10.4	29	2.4	24,25	4.3	8.0
Johnsonville, Tenn.	94	21.0	7.5	12	2.4	30	4.6	5.1
Arkansas River.								
Fort Smith, Ark.	351	22.0	16.0	14	4.6	1,2	10.9	11.4
Litttle Rock, Ark.	176	23.0	18.5	15	5.9	2	12.5	12.6
Red River.								
Shreveport, La.	449	29.2	30.3	29,30	12.3	1	20.5	18.0
James River.								
Lynchburg, Va.	251	18.0	1.5	27	0.2	20,21	0.7	1.3
Congaree River.								
Columbia, S. C.	.....	15.0	4.5	16	0.5	24,25	1.4	4.0
Savannah River.								
Augusta, Ga.	140	32.6	16.3	9	6.0	30,31	8.4	10.3
Alabama River.								
Montgomery, Ala.	215	48.0	10.5	12	1.9	31	5.4	8.6
Willamette River.								
Portland, Oreg.	.....	15.0	12.3	8,9	7.8	30,31	10.8	4.5
Sacramento River.								
Red Bluff, Cal.	.....	20.0	2.7	1	1.0	31	1.7	1.7
Sacramento, Cal.	.....	28.0	17.8	1	11.9	31	14.7	5.9

*To mouth of Mississippi River. †To mouth of Ohio River

TABLE VIII.—*Temperature of the wet-bulb thermometer, July, 1895.*

Stations.	Local time faster or slower than 75th meridian time.	8 A. M.			8 P. M.		
		Max.	Min.	Mean.	Max.	Min.	Mean.
New England.	h. m.	°	°	°	°	°	°
Eastport, Me	32 F.	60	51	55	61	50	55
Portland, Me	19 F.	70	54	61	70	56	61
Northfield, Vt	9 F.	69	48	58	72	49	59
Boston, Mass	16 F.	72	52	62	73	54	63
Nantucket, Mass	20 F.	69	53	63	69	56	62
Woods Holl, Mass	17 F.				69	58	63
Block Island, R. I	14 F.	70	54	63	72	57	64
New Haven, Conn	8 F.	71	52	62	74	54	64
New London, Conn	12 F.	70	56	64	74	56	65
Middle Atlantic States.							
Albany, N Y	5 F.	72	54	62	74	53	63
New York, N. Y	4 F.	73	53	63	75	57	64
Harrisburg, Pa	7 S.	72	52	62	76	54	65
Philadelphia, Pa	0	72	51	62	75	55	65
Baltimore, Md	6 S.	73	55	64	75	55	65
Washington, D. C	8 S.	73	54	65	76	56	67
Lynchburg, Va	16 S.	73	58	66	76	58	68
Norfolk, Va	5 S.	76	60	69	76	61	69
South Atlantic States.							
Charlotte, N. C	23 S.	74	60	68	74	63	69
Hatteras, N. C	2 S.	70	65	73	78	60	72
Kittyhawk, N. C	3 S.	78	64	71	70	63	72
Raleigh, N. C	14 S.	74	60	69	75	63	70
Wilmington, N. C	12 S.	78	61	72	78	64	72
Charleston, S. C	20 S.	78	65	74	80	65	74
Augusta, Ga	27 S.	75	65	72	78	67	72
Savannah, Ga	24 S.	78	65	74	78	65	74
Jacksonville, Fla	26 S.	77	70	74	78	69	74
Florida Peninsula.							
Jupiter, Fla	20 S.	78	71	76	78	68	75
Key West, Fla	27 S.	78	72	76	78	73	76
Tampa, Fla	30 S.	77	73	76	79	70	75
Titusville, Fla	23 S.	78	72	76	80	70	75
Eastern Gulf States.							
Atlanta, Ga	37 S.	72	63	69	76	67	71
Pensacola, Fla	49 S.	80	72	76	79	72	76
Mobile, Ala	52 S.	78	69	75	80	72	76
Montgomery, Ala	45 S.	76	66	72	77	69	74
Meridian, Miss	55 S.	76	67	73	77	68	74
Vicksburg, Miss	1 08 S.	76	68	73	80	71	75
New Orleans, La	1 00 S.	77	72	75	78	71	74
Western Gulf States.							
Shreveport, La	1 14 S.	76	69	74	81	71	76
Fort Smith, Ark	1 17 S.	80	69	74	82	68	75
Little Rock, Ark	1 08 S.	78	67	72	80	67	75
Corpus Christi, Tex	1 30 S.	79	76	78	79	77	78
Galveston, Tex	1 19 S.	79	75	77	78	74	76
Palestine, Tex	1 22 S.	75	69	74	79	70	76
San Antonio, Tex	1 34 S.	75	72	73	77	70	73
Ohio Valley and Tenn.							
Chattanooga, Tenn	41 S.	74	64	69	76	63	71
Knoxville, Tenn	36 S.	72	63	68	77	64	70
Memphis, Tenn	1 00 S.	79	62	71	80	67	74
Nashville, Tenn	47 S.	75	56	68	78	62	71
Lexington, Ky	38 S.	73	52	65	72	57	66
Louisville, Ky	43 S.	74	51	65	76	58	69
Indianapolis, Ind	44 S.	73	50	63	75	54	67
Cincinnati, Ohio	38 S.	73	50	63	74	55	66
Columbus, Ohio	32 S.	71	50	61	72	54	63
Pittsburg, Pa	20 S.	71	52	61	72	54	64
Parkersburg, W. Va	26 S.	73	53	63	77	58	66
Lower Lake Region.							
Buffalo, N. Y	15 S.	70	52	61	71	49	62
Oswego, N. Y	6 S.	70	52	60	69	52	61
Rochester, N. Y	11 S.	71	51	60	71	48	60
Erie, Pa	20 S.	70	51	61	71	52	62
Cleveland, Ohio	27 S.	70	50	60	73	53	63
Sandusky, Ohio	30 S.	70	53	61	72	55	63
Toledo, Ohio	34 S.	70	50	60	72	54	62
Detroit, Mich	32 S.	69	47	59	72	51	61
Upper Lake Region.							
Alpena, Mich	34 S.	68	45	55	68	49	58
Grand Haven, Mich	45 S.	67	48	59	70	49	60
Marquette, Mich	49 S.	67	48	56	72	46	57
Port Huron, Mich	30 S.	67	48	57	74	50	60
Sault Ste. Marie, Mich	37 S.	64	44	53	68	47	56
Chicago, Ill	50 S.	69	48	61	71	51	62

Stations.	Local time faster or slower than 75th meridian time.	8 A. M.			8 P. M.		
		Max.	Min.	Mean.	Max.	Min.	Mean.
Up. Lake Region—Con.	h. m.	°	°	°	°	°	°
Milwaukee, Wis	51 S.	66	48	59	70	51	62
Green Bay, Wis	52 S.	68	47	57	71	54	61
Duluth, Minn	1 08 S.	67	47	56	70	49	58
North Dakota.							
Moorhead, Minn	1 27 S.	70	46	57	78	52	63
St. Vincent, Minn	1 29 S.	66	48	56	75	51	63
Bismarck, N. Dak	1 42 S.	66	48	56	75	46	62
Williston, N. Dak	1 54 S.	66	46	55	69	50	61
Upper Mississippi Valley.							
St. Paul, Minn	1 12 S.	70	48	59	73	50	63
La Crosse, Wis	1 05 S.	70	50	59	77	54	66
Davenport, Iowa	1 02 S.	72	48	62	76	55	66
Des Moines, Iowa	1 14 S.	70	49	62	75	54	67
Keokuk, Iowa	1 06 S.	71	52	63	78	55	67
Cairo, Ill	56 S.	74	56	69	79	61	72
Springfield, Ill	58 S.	71	52	64	76	55	67
Hannibal, Mo	1 05 S.	75	55	66	78	57	68
St. Louis, Mo	1 01 S.	77	54	66	80	58	69
Missouri Valley.							
Columbia, Mo	1 09 S.				78	59	70
Kansas City, Mo	1 18 S.	75	55	66	78	56	69
Springfield, Mo	1 13 S.	75	55	67	78	59	70
Omaha, Nebr	1 24 S.	70	50	62	78	54	67
Sioux City, Iowa	1 26 S.	71	47	60	77	55	65
Pierre, S. Dak	1 41 S.	69	50	59	74	56	64
Huron, S. Dak	1 32 S.	67	46	58	73	52	62
Northern Slope.							
Havre, Mont	2 19 S.	60	40	52	70	50	61
Miles City, Mont	2 03 S.	64	42	55	71	52	62
Helena, Mont	2 28 S.	55	39	48	63	45	54
Rapid City, S. Dak	1 53 S.	62	46	55	67	48	60
Cheyenne, Wyo	1 59 S.	54	41	49	66	41	57
Lander, Wyo	2 15 S.	55	40	47	63	47	55
North Platte, Nebr	1 43 S.	68	48	59	76	51	66
Middle Slope.							
Denver, Colo	2 00 S.	59	42	52	68	46	58
Pueblo, Colo	1 58 S.	62	47	54	65	52	60
Concordia, Kans	1 31 S.	73	50	64	75	57	68
Dodge City, Kans	1 40 S.	73	49	64	76	55	68
Wichita, Kans	1 29 S.	73	56	67	80	58	71
Oklahoma, Okla	1 30 S.	74	60	70	82	64	74
Southern Slope.							
Abilene, Tex	1 39 S.	72	61	67	75	65	71
Amarillo, Tex	1 47 S.	68	54	63	72	57	66
Southern Plateau.							
El Paso, Tex	2 06 S.	66	52	61	68	60	65
Santa Fe, N. Mex	2 04 S.	57	44	51	62	46	54
Phœnix, Ariz	2 28 S.						
Yuma, Ariz	2 38 S.	74	57	66	78	63	71
Independence, Cal	2 53 S.	55	43	50	61	53	58
Middle Plateau.							
Carson City, Nev	2 59 S.	51	40	45	60	51	55
Winnemucca, Nev	2 51 S.	51	36	43	58	48	54
Salt Lake City, Utah	2 27 S.	62	44	53	65	53	59
Northern Plateau.							
Baker City, Oreg	2 51 S.	53	35	44	63	46	56
Idaho Falls, Idaho	2 28 S.	63	39	46	63	48	56
Spokane, Wash	2 49 S.	57	42	49	64	49	56
Walla Walla, Wash	2 53 S.	61	47	52	71	53	61
N. Pac. Coast Region.							
Fort Canby, Wash	3 16 S.	67	49	54	76	53	58
Port Angeles, Wash	3 14 S.	54	44	49	64	48	54
Seattle, Wash	3 09 S.	60	48	52	65	52	59
Tatoosh Island, Wash	3 19 S.	57	47	52	58	51	54
Portland, Oreg	3 11 S.	60	47	53	66	52	59
Roseburg, Oreg	3 13 S.	56	42	51	66	54	61
Mid. Pac. Coast Region.							
Eureka, Cal	3 17 S.	57	48	52	58	52	55
Red Bluff, Cal	3 09 S.	63	49	57	72	59	65
Sacramento, Cal	3 06 S.	61	50	55	73	66	65
San Francisco, Cal	3 10 S.	56	50	53	58	52	56
S. Pac. Coast Region.							
Fresno, Cal	2 59 S.	61	47	54	70	56	63
Los Angeles, Cal	2 53 S.	62	53	58	66	60	63
San Diego, Cal	2 49 S.	63	54	59	66	57	62
San Luis Obispo, Cal	3 08 S.	56	44	53	66	55	60

TABLE IX.—*Resultant winds from observations at 8 a. m. and 8 p. m., daily, during July, 1895.*

Stations.	Component direction from—				Resultant.	
	N.	S.	E.	W.	Direction from—	Duration.
New England.	*Hours.*	*Hours.*	*Hours.*	*Hours.*	°	*Hours.*
Eastport, Me	13	27	11	22	s. 38 w.	18
Portland, Me	16	29	8	23	s. 49 w.	20
Northfield, Vt	24	29	3	18	s. 72 w.	16
Boston, Mass	22	18	6	28	n. 80 w.	22
Nantucket, Mass	20	16	10	29	n. 78 w.	19
Woods Holl, Mass*	4	21	3	8	s. 16 w.	18
Block Island, R. I	15	24	10	33	s. 69 w.	25
New Haven, Conn	24	27	6	16	s. 73 w.	10
New London, Conn	19	22	7	29	s. 82 w.	22
Middle Atlantic States.						
Albany, N. Y	16	28	10	16	s. 27 w.	13
New York, N. Y	22	20	12	23	n. 80 w.	11
Harrisburg, Pa	18	14	9	29	n. 79 w.	20
Philadelphia, Pa	21	17	10	26	n. 76 w.	16
Baltimore, Md	23	17	7	30	n. 75 w.	24
Washington, D. C	21	20	6	26	n. 87 w.	20
Lynchburg, Va	15	17	20	25	s. 68 w.	5
Norfolk, Va	19	22	20	14	s. 63 e.	7
South Atlantic States.						
Charlotte, N. C	9	28	19	21	s. 6 w.	19
Hatteras, N. C	15	21	14	25	s. 61 w.	12
Kittyhawk, N. C	19	23	16	20	s. 45 w.	8
Raleigh, N. C	19	23	8	27	s. 78 w.	19
Wilmington, N. C	11	27	14	24	s. 32 w.	19
Charleston, S. C	6	33	13	29	s. 31 w.	31
Augusta, Ga	15	26	15	22	s. 32 w.	13
Savannah, Ga	4	31	8	29	s. 38 w.	34
Jacksonville, Fla	5	38	9	26	s. 28 w.	37
Florida Peninsula.						
Jupiter, Fla	4	35	15	19	s. 7 w.	31
Key West, Fla	11	17	36	3	s. 80 e.	34
Tampa, Fla	11	18	19	29	s. 55 w.	12
Titusville, Fla	3	35	16	27	s. 19 w.	34
Eastern Gulf States.						
Atlanta, Ga	15	17	13	32	s. 84 w.	19
Pensacola, Fla	12	23	6	35	s. 69 w.	31
Mobile, Ala	20	20	8	27	w.	19
Montgomery, Ala	20	20	20	21	w.	1
Meridian, Miss	13	31	14	23	s. 27 w.	20
Vicksburg, Miss	10	29	17	23	s. 18 w.	20
New Orleans, La	3	38	6	33	s. 26 w.	39
Western Gulf States.						
Shreveport, La	9	33	15	22	s. 16 w.	25
Fort Smith, Ark	8	14	41	8	s. 80 e.	34
Little Rock, Ark	10	28	22	19	s. 9 e.	18
Corpus Christi, Tex	0	44	43	0	s. 44 e.	62
Galveston, Tex	2	48	2	26	s. 28 w.	52
Palestine, Tex	4	43	15	10	s. 7 e.	39
San Antonio, Tex	2	43	32	1	s. 37 e.	51
Ohio Valley and Tennessee.						
Chattanooga, Tenn	16	18	9	29	s. 84 w.	20
Knoxville, Tenn	17	13	20	25	n. 51 w.	6
Memphis, Tenn	15	22	22	16	s. 41 e	9
Nashville, Tenn	15	20	11	31	s. 76 w.	21
Lexington, Ky	13	25	20	22	s. 9 w.	12
Louisville, Ky	22	24	14	14	s.	2
Indianapolis, Ind	21	22	11	20	s. 84 w.	9
Cincinnati, Ohio	15	20	20	19	s. 11 e.	5
Columbus, Ohio	22	17	18	23	n. 45 w.	7
Pittsburg, Pa	28	18	11	18	n. 35 w.	12
Parkersburg, W. Va	14	24	23	11	s. 50 e.	16
Lower Lake Region.						
Buffalo, N. Y	21	16	13	32	n. 75 w.	20
Oswego, N. Y	11	21	9	32	s. 67 w.	25
Rochester, N. Y	19	20	13	26	s. 86 w.	13
Erie, Pa	14	21	10	39	s. 76 w.	30
Cleveland, Ohio	21	18	20	13	n. 67 e.	8
Sandusky, Ohio	14	29	17	13	s. 15 e.	16
Toledo, Ohio	14	11	25	25	n.	3
Detroit, Mich	22	14	19	25	n. 37 w.	10
Upper Lake Region.						
Alpena, Mich	26	19	12	25	n. 62 w.	15
Grand Haven, Mich	19	16	13	30	n. 80 w.	17
Marquette, Mich	23	17	12	25	n. 65 w.	14
Port Huron, Mich	26	18	16	18	n. 14 w.	8
Sault Ste. Marie, Mich	22	14	17	29	n. 56 w.	14
Chicago, Ill	16	15	21	23	n. 63 w.	2
Upper Lake Region—Cont'd.						
Milwaukee, Wis	20	17	21	20	n. 18 e.	3
Green Bay, Wis	21	19	22	14	n. 76 e.	8
Duluth, Minn	34	9	19	20	n. 2 w.	25
North Dakota.						
Moorhead, Minn	18	25	13	17	s. 30 w.	8
St. Vincent, Minn	23	20	29	14	n. 79 e.	15
Bismarck, N. Dak	22	23	12	14	s. 63 w.	2
Williston, N. Dak	21	22	18	14	s. 76 e.	4
Upper Mississippi Valley.						
St. Paul, Minn	17	20	19	23	s. 53 w.	5
La Crosse, Wis	19	27	7	16	s. 48 w.	12
Davenport, Iowa	15	23	17	21	s. 27 w.	9
Des Moines, Iowa	18	26	16	16	s.	8
Keokuk, Iowa	16	28	15	20	s. 23 w.	13
Cairo, Ill	21	27	11	16	s. 40 w.	8
Springfield, Ill	19	23	20	14	s. 56 e.	7
Hannibal, Mo	11	27	20	18	s. 7 e.	16
St. Louis, Mo	23	25	16	13	s. 56 e.	4
Missouri Valley.						
Columbia, Mo*	8	12	16	4	s. 72 e.	13
Kansas City, Mo	18	26	27	10	s. 65 e.	19
Springfield, Mo	17	28	19	11	s. 36 e.	14
Omaha, Nebr	16	32	24	8	s. 45 e.	23
Sioux City, Iowa	17	28	18	13	s. 24 e.	12
Pierre, S. Dak	13	19	32	11	s. 74 e.	22
Huron, S. Dak	18	23	25	13	s. 67 e.	13
Northern Slope.						
Havre, Mont	22	12	12	26	n. 54 w.	17
Miles City, Mont	17	20	19	16	s. 45 e.	4
Helena, Mont	13	24	11	35	s. 65 w.	26
Rapid City, S. Dak	17	23	16	19	s. 27 w.	7
Cheyenne, Wyo	16	25	9	19	s. 48 w.	14
Lander, Wyo	15	19	12	30	s. 77 w.	18
North Platte, Nebr	12	24	23	17	s. 27 e.	13
Middle Slope.						
Denver, Colo	20	26	13	18	s. 40 w.	8
Pueblo, Colo	22	15	18	22	n. 30 w.	8
Concordia, Kans	13	34	17	12	s. 13 e.	22
Dodge City, Kans	13	32	24	5	s. 45 e.	27
Wichita, Kans	17	28	23	6	s. 57 e.	20
Oklahoma, Okla	20	32	13	7	s. 27 e.	13
Southern Slope.						
Abilene, Tex	9	38	22	7	s. 28 e.	33
Amarillo, Tex	9	37	15	8	s. 14 e.	29
Southern Plateau.						
El Paso, Tex	20	10	34	13	n. 65 e.	23
Santa Fe, N. Mex	15	24	20	10	s. 65 e.	21
Phœnix, Ariz						
Yuma, Ariz	16	22	14	25	s. 61 w.	13
Independence, Cal	19	22	15	27	s. 76 w.	12
Middle Plateau.						
Carson City, Nev	12	14	10	38	s. 86 w.	28
Winnemucca, Nev	14	18	16	26	s. 68 w.	11
Salt Lake City, Utah	18	23	27	13	s. 70 e.	15
Northern Plateau.						
Baker City, Oreg	23	24	11	22	s. 85 w.	11
Idaho Falls, Idaho	20	31	7	13	s. 29 w.	12
Spokane, Wash	16	26	14	19	s. 27 w.	11
Walla Walla, Wash	15	31	8	17	s. 29 w.	18
North Pacific Coast Region.						
Fort Canby, Wash	38	12	7	14	n. 15 w.	27
Port Angeles, Wash	5	22	4	37	s. 62 w.	37
Seattle, Wash	26	15	10	20	n. 42 w.	15
Tatoosh Island, Wash	3	26	19	24	s. 12 w.	24
Portland, Oreg	31	14	10	30	n. 50 w.	26
Roseburg, Oreg	41	4	9	25	n. 23 w.	40
Middle Pacific Coast Region.						
Eureka, Cal	24	15	12	31	n. 65 w.	21
Red Bluff, Cal	22	27	22	7	s. 72 e.	16
Sacramento, Cal	3	46	5	24	s. 24 w.	47
San Francisco, Cal	1	23	0	51	s. 66 w.	56
South Pacific Coast Region.						
Fresno, Cal	33	3	4	42	n. 50 w.	47
Los Angeles, Cal	7	16	11	35	s. 69 w.	26
San Diego, Cal	16	15	4	41	n. 88 w.	37
San Luis Obispo, Cal	18	19	1	35	s. 88 w.	34

* From observations at 8 p. m. only.

TABLE X.—*Thunderstorms and auroras, July, 1895.*

States.	No. of stations.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Total. No.	Total. Days.	
Alabama	56	T.	5	3	3	5	5	....	1	1	2	....	1	1	3	2	2	1	....	2	3	3	3	2	2	2	1	....	....	....	1	4	2	60	25	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arizona	45	T.	3	2	2	1	....	....	....	2	1	1	2	2	1	1	....	1	....	....	....	6	2	2	....	2	4	1	1	....	....	1	3	41	21	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Arkansas	51	T.	2	2	3	3	3	2	7	1	....	....	2	....	3	2	....	2	1	2	3	3	2	2	3	1	....	....	4	3	....	4	2	62	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
California	208	T.	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	1	1	1	....	....	....	....	....	....	....	....	....	....	6	5	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Colorado	88	T.	9	12	7	8	....	1	3	6	9	6	6	7	8	1	2	7	13	8	15	11	11	5	3	....	1	....	2	17	15	12	15	220	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	....	....	3	3	A.
Connecticut	22	T.	....	....	....	....	3	9	....	....	7	....	....	....	12	....	....	....	....	....	....	3	7	....	....	....	4	....	4	1	....	12	....	62	10	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Delaware	7	T.	....	....	....	1	2	....	....	....	....	....	....	....	....	....	1	1	....	....	....	1	1	1	....	....	....	1	....	2	....	....	2	1	14	11	T.
		A.	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	1	1	....	....	....	....	....	....	....	....	....	....	4	4	A.
Dist. of Columbia	4	T.	1	....	....	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	....	....	1	....	1	....	....	....	....	7	7	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Florida	38	T.	11	5	10	9	8	11	3	3	13	12	6	9	7	13	14	10	10	12	13	11	9	11	6	8	11	7	6	2	5	4	7	206	31	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Georgia	58	T.	1	1	....	....	....	1	4	5	1	1	....	1	2	1	5	2	2	2	3	2	1	1	....	1	2	1	....	1	....	2	1	44	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Idaho	35	T.	....	....	3	6	5	2	....	3	1	....	....	....	....	....	....	1	1	1	....	....	....	1	1	1	1	....	....	3	3	11	7	51	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Illinois	86	T.	....	....	....	1	1	7	21	9	1	....	....	....	1	23	12	17	25	21	14	13	5	4	4	8	4	18	22	....	18	1	1	251	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Indiana	42	T.	....	....	....	....	....	3	5	3	....	....	....	....	....	7	9	1	8	6	4	9	8	7	1	....	....	3	4	....	....	....	....	78	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Indian Territory	7	T.	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	3	2	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Iowa	95	T.	....	....	....	2	....	3	8	2	....	....	....	....	1	19	8	9	6	28	6	9	....	....	....	....	9	22	10	7	11	....	....	160	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Kansas	83	T.	1	5	2	11	9	....	13	....	1	....	....	....	3	2	....	....	4	8	7	11	3	2	2	....	....	....	....	3	6	3	....	96	19	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	1	1	A.
Kentucky	42	T.	....	....	....	....	....	3	....	2	1	....	....	....	....	1	9	2	....	....	....	6	4	1	4	2	1	....	1	....	....	2	....	39	14	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Louisiana	53	T.	4	10	8	10	1	2	3	2	13	11	13	5	4	4	2	1	7	11	11	6	4	5	8	10	10	3	7	4	4	4	2	189	31	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Maine	18	T.	1	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	2	....	....	....	3	....	9	5	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	1	1	A.
Maryland	40	T.	1	....	....	....	9	....	....	1	....	....	....	....	....	....	4	9	2	....	3	10	7	2	1	....	3	....	10	2	....	4	....	68	15	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Massachusetts	79	T.	1	....	....	1	1	15	1	4	....	....	....	2	28	8	....	....	....	....	....	....	15	15	....	1	....	....	13	1	....	30	1	137	16	T.
		A.	....	1	....	1	....	....	....	....	....	....	2	1	....	1	....	....	1	1	....	....	....	....	....	....	....	....	....	....	....	....	....	8	7	A.
Michigan	76	T.	....	....	....	....	1	....	5	1	....	....	....	....	3	5	1	....	4	5	1	1	1	....	2	1	6	4	....	6	2	....	....	49	17	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Minnesota	69	T.	....	1	....	7	6	14	....	....	....	....	1	....	....	18	2	4	2	28	....	7	....	1	5	2	2	10	1	3	1	1	....	116	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	1	....	....	....	....	....	....	....	3	3	A.
Mississippi	52	T.	7	6	7	7	5	2	2	1	8	2	6	2	4	1	1	2	3	4	6	5	1	....	4	4	1	....	2	2	2	....	2	99	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Missouri	100	T.	1	...	2	19	18	6	8	6	2	3	1	1	6	21	7	1	20	15	28	24	13	8	2	....	6	2	20	21	31	9	....	301	28	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Montana	34	T.	1	1	2	7	1	1	2	1	....	....	....	....	1	....	1	....	2	1	4	....	....	....	2	4	1	....	1	2	1	5	4	45	23	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	....	....	....	....	....	1	....	....	....	....	4	3	A.
Nebraska	128	T.	....	....	....	6	2	2	5	....	....	....	....	....	6	6	....	....	3	5	11	6	1	1	....	1	2	3	2	11	11	....	....	84	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	1	A.
Nevada	49	T.	1	1	1	....	....	....	....	....	1	1	1	1	....	....	2	3	1	....	5	4	2	....	....	....	....	....	....	3	1	....	....	31	16	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	1	1	A.
New Hampshire	23	T.	....	....	....	....	....	....	....	....	3	1	....	....	4	....	....	....	....	1	....	....	4	1	....	....	2	1	....	....	1	....	7	25	10	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	....	....	4	3	A.
New Jersey	53	T.	1	....	....	1	15	6	1	....	....	....	1	....	13	....	1	14	12	2	....	16	22	4	1	1	7	....	15	4	....	16	....	153	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New Mexico	32	T.	1	2	1	....	....	....	....	....	3	3	2	2	....	....	....	1	1	1	....	1	2	3	3	1	3	....	1	1	3	4	....	39	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
New York	82	T.	....	....	....	2	3	4	2	3	....	....	....	....	12	....	1	9	3	2	....	8	13	7	....	....	9	....	2	1	....	4	....	85	17	T.
		A.	1	1	....	....	....	....	....	....	....	1	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	4	4	A.
North Carolina	56	T.	11	2	....	2	....	....	2	7	7	2	5	1	3	1	14	9	1	4	10	6	12	18	9	10	4	....	2	2	....	8	....	147	25	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
North Dakota	35	T.	....	....	....	6	4	2	....	....	1	....	....	....	1	1	....	....	3	....	....	3	1	2	....	....	1	2	1	....	....	....	....	28	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	1	....	1	....	....	1	2	1	....	....	8	6	A.
Ohio	118	T.	1	1	....	....	2	....	1	9	1	....	....	....	....	1	38	1	....	1	16	23	28	14	3	....	1	5	29	....	....	1	....	176	19	T.
		A.	....	....	....	....	....	....	....	1	....	....	....	....	1	....	....	1	1	1	1	1	2	2	....	....	....	....	....	....	....	....	....	10	9	A.
Oklahoma	19	T.	1	....	....	....	....	....	4	1	....	....	....	....	....	....	....	....	....	....	....	2	2	2	1	....	....	....	....	....	....	1	....	14	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Oregon	63	T.	....	....	2	1	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	1	2	....	....	....	....	1	4	2	....	....	13	7	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Pennsylvania	95	T.	1	....	....	2	....	6	1	....	2	2	....	....	4	....	4	18	6	....	....	14	22	4	1	....	7	1	15	3	....	1	1	115	20	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Rhode Island	8	T.	....	....	....	....	1	....	....	....	....	....	....	....	6	1	....	....	....	....	....	....	2	3	....	....	....	....	....	....	....	2	....	15	6	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
South Carolina	42	T.	....	5	1	....	....	3	9	8	3	....	....	3	3	5	9	7	6	....	3	6	5	2	3	1	8	2	....	6	1	1	4	104	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
South Dakota	47	T.	....	....	....	3	3	....	....	....	1	....	....	....	3	2	....	....	9	3	4	1	1	2	4	3	3	2	4	7	2	....	3	60	19	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	2	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	2	1	A.
Tennessee	40	T.	6	1	2	1	....	9	7	5	....	....	....	1	4	7	12	8	2	1	9	10	5	5	7	7	....	....	5	....	2	6	....	122	23	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Texas	86	T.	5	6	3	....	....	....	1	3	4	7	5	....	2	....	....	....	1	1	2	3	5	9	4	5	3	2	1	2	2	3	3	82	24	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Utah	36	T.	....	....	....	....	....	....	....	1	2	5	3	1	1	....	....	....	1	....	1	2	2	2	....	....	1	1	1	2	5	2	3	36	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Vermont	16	T.	....	....	....	....	1	1	....	....	2	....	....	....	5	....	....	....	....	....	....	2	4	2	....	....	3	1	3	....	2	2	2	30	13	T.
		A.	1	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	....	....	....	3	3	A.
Virginia	29	T.	1	....	....	2	1	....	....	1	2	....	....	....	....	....	7	2	....	....	1	1	3	4	4	1	....	1	1	....	....	1	....	33	16	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Washington	48	T.	....	....	3	5	....	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	2	2	....	....	2	4	....	1	....	20	8	T.
		A.	....	1	....	....	....	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	....	....	....	....	....	....	3	3	A.
West Virginia	38	T.	....	....	....	....	1	....	....	1	....	....	....	1	1	....	6	....	....	....	2	7	8	4	7	3	....	....	2	....	....	2	....	45	13	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Wisconsin	61	T.	....	....	....	1	2	6	13	....	....	....	1	....	....	15	2	11	2	18	2	2	....	1	3	7	....	15	....	1	7	....	....	109	18	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Wyoming	11	T.	....	1	1	....	1	....	....	....	....	....	....	....	....	....	....	....	1	....	2	....	1	1	....	....	1	....	....	....	....	....	....	....	9	8	T.
		A.	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	0	0	A.
Sums	2,708	T.	78	67	64	130	115	122	134	92	92	57	56	40	152	166	180	159	158	192	194	259	344	159	102	91	121	111	205	121	142	171	74	4,048	....	T.
		A.	2	3	0	1	0	0	0	1	0	2	4	6	5	4	0	2	2	4	1	1	4	7	0	2	1	2	3	5	2	0	0	64	....	A.

TABLE XI.—*Hourly sunshine as deduced from sunshine recorders, July, 1895.*

Stations.	Instrument.	Percentages for each hour of local mean time ending with the respective hour. A. M. 5	6	7	8	9	10	11	Noon.	P. M. 1	2	3	4	5	6	7	8	Monthly summary. Instrumental record. Actual.	Possible.	Per cent of possible.	Personal estimate.
																		Hours.	*Hours.*		
Atlanta, Ga.	T.	8	34	46	63	72	80	87	94	93	95	89	76	66	60	36	23	308.2	439.3	70	45
Baltimore, Md.	T.	49	55	58	65	68	78	81	82	85	85	87	77	68	58	38	35	313.5	453.6	69	57
Bismarck, N. Dak.	P.	49	49	58	68	70	73	77	74	68	70	70	62	59	47	42	42	294.6	479.3	61	56
Boston, Mass.	T.	14	23	37	57	72	76	77	77	81	70	63	61	46	39	32	10	252.8	462.6	55	38
Buffalo, N. Y.	T.	0	0	15	57	61	74	76	80	79	80	78	68	59	37	14	15	243.5	464.9	52	32
Chicago, Ill.	T.	23	31	67	95	97	96	97	99	98	98	100	99	95	72	48	45	379.7	461.4	82	63
Cincinnati, Ohio	T.*	65	62	64	69	83	87	91	88	93	94	97	92	82	77	64	45	363.8	453.1	80	54
Cleveland, Ohio	P.	39	37	44	57	74	81	78	80	91	90	84	77	61	64	54	49	312.9	460.1	68	50
Columbus, Ohio	T.	18	16	31	63	79	86	92	91	92	91	91	84	71	52	14	10	298.8	455.7	66	46
Denver, Colo.	P.	59	63	62	67	75	74	75	65	62	59	55	46	42	44	43	42	268.2	454.9	59	49
Des Moines, Iowa	T.	61	58	57	65	76	79	82	78	76	79	74	67	64	69	71	75	327.3	460.2	71	57
Detroit, Mich.	T.	3	6	14	51	84	87	92	93	93	94	88	79	72	55	24	11	290.9	463.1	63	50
Dodge City, Kans.	P.	24	39	55	61	70	68	70	68	70	66	69	74	70	62	54	49	284.1	449.9	63	58
Eastport, Me.	P.	16	16	26	30	47	53	61	65	65	69	81	73	67	48	38	25	235.5	471.5	50	42
Galveston, Tex.	P.	.....	49	78	89	89	95	95	95	91	92	94	92	88	80	57	43	364.0	428.3	85	80
Helena, Mont.	P.	56	57	64	66	76	80	80	78	85	82	74	70	62	63	55	50	330.7	477.9	69	67
Kansas City, Mo.	P.	42	42	45	49	54	54	55	58	63	60	59	62	60	51	47	60	243.7	432.9	54	42
Key West, Fla.	T.	.....	65	64	62	73	80	88	90	85	79	78	79	70	59	42	.....	306.5	419.3	73	51
Little Rock, Ark.	T.	25	39	39	53	65	69	71	70	78	75	65	57	52	44	39	35	374.8	451.3	61	46
Louisville, Ky.	T.	42	39	48	53	62	77	80	84	80	68	71	74	67	43	26	22	336.6	477.8	70	45
Marquette, Mich.	T.	4	27	55	72	88	94	95	98	92	89	88	83	79	73	46	6	136.6	226.3	56	40
Memphis, Tenn.	P.†	21	40	46	48	49	49	47	48	63	72	72	68	42	41	22	19	386.5	459.4	62	57
New Haven, Conn.	T.	33	22	38	61	66	82	89	85	86	86	80	75	65	50	19	20	368.1	429.4	62	62
New Orleans, La.	T.	.....	53	66	81	82	81	73	64	61	60	60	66	56	45	26	8	271.4	457.8	59	46
New York, N. Y.	T.	16	23	29	47	63	70	77	86	87	85	82	75	61	42	32	23	355.9	448.2	57	49
Norfolk, Va.	T.	5	10	21	55	70	79	85	85	86	78	74	62	55	40	19	18	333.2	455.7	73	49
Philadelphia, Pa.	T.	38	52	61	66	77	80	82	85	90	90	89	88	70	70	54	26	346.8	467.2	74	35
Portland, Me.	T.	10	34	57	79	95	95	99	97	92	96	93	83	80	74	40	0	330.0	473.8	68	56
Portland, Oreg.	P.	39	46	45	52	64	69	75	82	83	85	83	84	79	52	65	64	337.2	473.8	71	56
Do	P.	39	46	58	65	68	71	76	80	84	84	80	86	85	71	65	65	337.2	473.8	71	56
Rochester, N. Y.	T.	43	39	49	66	75	78	86	83	87	78	86	80	70	58	37	33	313.4	465.0	67	49
St. Louis, Mo.	T.	33	33	41	51	64	74	81	85	83	87	75	74	58	45	31	19	276.5	451.9	61	42
Salt Lake City, Utah.	T.	61	61	60	71	72	76	84	87	86	83	88	79	79	69	65	64	343.8	458.2	75	54
Do	P.	61	65	68	74	75	73	81	82	84	82	89	79	82	72	67	64	347.9	458.2	76	54
San Diego, Cal.	P.	17	3	11	30	51	73	78	91	97	97	95	94	90	75	55	54	293.9	436.6	67	69
San Francisco, Cal.	T.	0	0	7	29	35	57	72	83	93	91	87	81	60	22	0	0	222.8	450.2	49	51
Santa Fe, N. Mex.	P.	83	61	65	73	75	78	87	84	80	78	61	62	57	49	47	44	301.3	444.4	68	48
Savannah, Ga.	P.	50	63	70	87	84	78	75	68	69	68	61	56	46	34	16	21	270.8	435.0	62	52
Seattle, Wash.	T.	26	24	27	42	57	65	83	89	86	87	85	86	77	52	29	32	290.3	482.1	60	60
Spokane, Wash.	P.	24	37	57	67	74	75	73	66	63	72	68	72	68	55	36	25	286.1	482.4	59	50
Vicksburg, Miss.	T.	67	46	46	71	83	86	86	85	91	86	78	76	70	55	39	43	310.4	435.3	71	68
Washington, D. C.	T.	43	45	53	70	75	83	92	93	91	90	79	75	64	55	42	41	330.0	432.9	71	55
Wilmington, N. C.	T.	35	41	46	58	68	77	83	82	77	72	65	61	56	46	23	19	265.9	440.2	60	60

*Record from "P" incomplete. †All values for 16 days, except hourly percentages from 5 a. m. to noon, inclusive.

TABLE XII.—*Hourly precipitation, July, 1895.*

Stations.	1 a. m.	2 a. m.	3 a. m.	4 a. m.	5 a. m.	6 a. m.	7 a. m.	8 a. m.	9 a. m.	10 a. m.	11 a. m.	Noon.	1 p. m.	2 p. m.	3 p. m.	4 p. m.	5 p. m.	6 p. m.	7 p. m.	8 p. m.	9 p. m.	10 p. m.	11 p. m.	Midn't	Total.
Atlanta, Ga.	0.04	0.01	0.02	0.04	0.03	0.02	0.02	0.02	0.46	0.03	0.01	T.	0.02	0.21	0.15	0.67	0.41	0.21	0.04	0.06	0.11	0.09	0.02	0.00	2.69
Baltimore, Md.	0.10	0.03	0.03	0.05	0.10	0.05	T.	0.00	0.02	0.03	0.05	0.03	1.00	0.06	0.08	0.01	0.91	0.05	0.03	0.04	0.17	0.24	0.11	0.08	3.27
Bismarck, N. Dak.	0.04	0.04	0.06	0.11	0.80	0.15	T.	0.05	0.04	0.08	0.02	0.01	T.	T.	0.03	0.04	0.01	0.01	0.04	0.03	T.	T.	T.	0.35	1.96
Boston, Mass.	0.01	0.10	0.10	0.01	0.03	0.00	0.01	0.03	0.03	0.11	0.27	0.26	0.43	0.01	0.33	0.25	0.50	0.31	0.01	0.06	0.04	0.03	T.	0.04	2.97
Buffalo, N. Y.	T.	0.06	0.03	0.15	0.30	0.04	T.	T.	0.03	0.16	0.32	0.04	0.04	0.03	T.	T.	0.21	T.	0.02	0.01	0.19	0.06	0.14	0.02	1.85
Cincinnati, Ohio	0.06	0.07	0.18	0.38	0.27	0.02	0.13	0.02	0.02	0.02	T.	0.01	0.05	0.65	0.10	0.11	0.05	0.04	T.	0.02	T.	0.05	T.	T.	2.25
Cleveland, Ohio	T.	T.	0.10	0.01	0.06	0.14	0.30	0.31	T.	0.00	T.	T.	0.02	0.00	0.00	0.05	0.16	0.00	0.00	T.	0.04	0.03	T.	0.00	1.23
Denver, Colo.	0.04	T.	0.02	0.03	0.02	T.	0.02	0.05	0.02	T.	0.02	0.01	0.03	0.86	0.70	0.25	0.48	1.14	0.22	0.08	0.06	0.10	0.08	0.05	4.28
Detroit, Mich.	0.30	0.19	T.	0.02	0.05	0.04	0.08	0.08	0.13	0.18	0.26	0.03	0.03	0.67	0.20	0.23	0.43	0.28	0.07	0.00	T.	0.00	T.	0.03	3.30
Dodge City, Kans.	0.61	0.25	0.23	0.99	0.62	0.15	0.03	0.09	0.10	0.19	0.30	0.43	0.07	0.14	0.04	T.	T.	0.05	0.03	0.06	0.01	0.16	0.04	0.25	4.84
Duluth, Minn.	0.09	0.00	0.00	0.00	0.00	0.33	0.51	0.07	0.01	0.02	0.02	0.02	0.01	0.10	0.58	0.25	0.10	0.16	0.06	0.06	0.13	0.56	0.07	0.11	3.17
Eastport, Me.	0.14	0.46	0.52	0.23	0.15	0.25	0.16	0.07	0.13	0.23	0.11	0.04	0.07	0.04	T.	0.06	0.10	0.01	0.00	0.00	0.01	0.04	0.24	0.11	3.17
Galveston, Tex.	0.00	0.02	0.01	0.25	0.39	0.10	T.	T.	T.	T.	0.00	0.06	0.48	0.26	0.04	0.08	0.95	0.31	0.02	0.03	0.02	0.00	0.00	0.00	3.02
Indianapolis, Ind.	0.00	0.00	0.07	0.06	0.07	0.07	0.10	0.09	0.06	0.09	0.03	0.68	0.05	0.05	T.	T.	0.14	0.07	0.10	0.70	0.14	0.17	0.05	0.06	2.85
Jacksonville, Fla.	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.10	T.	0.01	0.02	0.68	1.04	1.09	0.59	0.57	1.61	1.08	2.03	0.75	0.86	0.23	0.24	0.16	11.21
Jupiter, Fla.	0.00	0.06	0.08	0.00	0.00	0.01	0.02	0.12	0.05	0.04	0.05	0.18	0.25	0.06	1.42	1.60	0.10	0.02	0.16	1.29	0.32	0.02	0.00	0.00	5.88
Kansas City, Mo.	0.66	0.10	0.11	0.16	1.29	0.14	1.58	1.76	1.04	0.86	0.80	0.20	0.02	T.	T.	0.02	0.38	0.06	0.06	0.24	T.	0.00	0.02	0.17	9.67
Key West, Fla.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.03	0.15	0.00	T.	0.17	0.08	T.	T.	0.00	0.00	T.	0.01	0.11	0.21	0.09	0.86
Little Rock, Ark.	0.09	T.	T.	T.	0.27	0.22	0.37	0.34	0.21	0.05	0.03	0.38	1.03	0.27	0.05	0.30	0.29	0.31	0.03	0.01	0.82	0.77	0.47	0.27	6.59
Louisville, Ky.	0.05	0.08	0.48	0.48	0.14	0.02	0.18	0.40	0.28	0.28	0.46	0.10	0.26	0.29	0.26	0.16	0.10	0.24	0.35	0.05	T.	0.55	0.04	0.01	5.26
Marquette, Mich.	0.07	0.01	0.01	0.01	T.	T.	0.01	T.	T.	0.00	0.00	T.	T.	0.01	0.03	0.19	0.04	0.11	0.34	0.07	0.15	0.07	0.03	0.08	1.13
Memphis, Tenn.	0.35	0.24	0.15	0.12	0.15	0.13	0.17	0.13	0.51	0.51	0.54	0.45	0.18	0.19	0.20	0.28	0.24	0.27	0.47	0.67	0.61	0.18	0.13	0.12	6.99
Milwaukee, Wis.	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	T.	T.	T.	0.31	0.03	0.08	0.08	0.22	0.45	0.10	0.02	0.04	1.41
Nantucket, Mass.	0.39	0.09	0.06	0.01	T.	0.18	0.02	0.12	0.17	0.28	0.04	0.01	0.07	0.11	0.05	0.03	0.05	0.04	0.31	0.12	0.19	0.10	T.	0.00	2.44
Nashville, Tenn.	0.85	0.13	0.02	0.09	0.02	0.08	0.17	0.01	0.01	0.03	0.15	T.	0.02	0.46	T.	0.06	0.09	0.48	0.07	0.96	0.01	0.01	1.95	1.47	7.14
New Orleans, La.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.06	0.16	0.32	0.26	0.30	1.62	0.96	1.02	0.22	0.47	0.24	0.17	0.16	0.05	0.01	0.00	6.04
New York, N. Y.	0.06	T.	T.	0.26	0.04	0.01	0.04	0.01	0.02	0.02	0.06	0.06	0.05	0.75	0.51	0.31	0.24	0.05	0.35	0.25	0.05	0.66	0.20	0.22	4.22
Norfolk, Va.	0.33	0.08	0.08	0.08	0.08	0.08	0.10	0.13	0.56	0.42	0.08	0.06	0.03	0.14	0.01	0.28	0.58	0.06	0.04	0.08	T.	0.01	0.45	0.51	4.27
Omaha, Nebr.	0.03	0.03	0.03	0.03	0.01	0.55	0.13	0.24	0.01	0.01	0.02	0.03	0.01	T.	T.	T.	T.	T.	0.00	0.00	T.	0.01	0.21	0.03	1.38
Philadelphia, Pa.	0.04	0.03	0.09	0.04	0.05	0.06	0.05	0.05	0.02	T.	T.	T.	0.01	0.40	0.16	0.10	0.04	0.15	0.37	0.06	0.52	0.01	0.16	0.68	3.09
Pittsburg, Pa.	0.05	0.08	0.02	T.	0.06	0.06	0.02	0.03	0.53	0.43	0.23	0.08	0.16	0.00	0.00	0.00	0.02	0.04	0.04	0.02	0.03	0.05	0.03	0.01	1.99
Portland, Me.	0.14	0.05	0.05	0.10	0.12	0.04	T.	0.00	0.00	T.	T.	0.05	T.	T.	0.22	0.50	0.47	0.83	0.26	0.13	0.04	0.01	0.34	0.09	3.44
Portland, Oreg. a	T.	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.01	0.03	T.	0.01	0.02	0.03	0.01	T.	T.	T.	T.	0.03	0.08	T.	0.27
Portland, Oreg. b	T.	0.00	0.00	0.00	0.00	0.00	0.01	0.02	0.01	0.01	0.01	0.03	T.	0.01	0.02	0.03	0.01	T.	T.	T.	T.	0.02	0.07	T.	0.25
Rochester, N. Y.	0.11	0.06	0.02	0.02	0.22	0.16	T.	T.	0.02	0.02	0.04	0.13	0.04	0.12	0.16	0.08	0.06	0.12	0.04	0.17	0.07	0.05	0.14	0.03	1.88
St. Louis, Mo.	T.	0.08	0.16	0.24	0.24	0.96	0.80	0.86	0.46	0.20	0.05	1.04	0.11	0.01	T.	0.16	0.04	0.08	0.40	0.41	0.69	0.08	0.05	0.03	7.15
St. Paul, Minn.	T.	0.02	0.03	1.30	0.56	0.05	0.06	0.01	0.76	0.11	0.11	0.16	0.20	0.09	0.06	0.01	0.02	T.	0.51	0.06	0.00	0.00	T.	T.	4.12
Salt Lake City, Utah.	0.05	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.01	0.00	0.00	0.00	0.02	0.02	0.01	0.07	0.04	0.04	0.03	T.	0.01	0.05	0.02	0.03	0.40
San Diego, Cal.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
San Francisco, Cal.	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	T.	T.	0.00	0.00	0.00	0.00	0.00	0.00	T.	0.00	0.00	0.00	0.00	0.01	0.01
Savannah, Ga.	0.26	0.28	0.05	0.02	0.01	0.02	0.03	0.18	0.07	0.01	T.	0.31	0.31	0.53	0.60	0.73	0.41	2.73	0.18	0.11	0.07	0.25	1.43	0.47	9.06
Seattle, Wash.	0.02	0.03	T.	T.	T.	0.02	0.04	0.00	T.	0.02	0.02	T.	0.01	0.02	0.03	0.07	0.03	T.	0.02	T.	0.00	0.02	0.01	0.01	0.37
Vicksburg, Miss.	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	T.	0.19	0.08	0.54	0.22	0.06	0.17	0.80	0.08	0.04	0.10	0.06	0.03	0.03	2.46
Washington, D. C.	0.12	0.18	0.26	0.11	0.19	0.19	0.01	0.05	0.00	T.	0.01	T.	T.	T.	0.05	0.10	0.50	0.68	0.10	0.14	0.04	0.17	0.03	0.06	2.99
Wilmington, N. C.	0.04	0.66	0.04	0.01	0.15	0.27	0.10	0.21	T.	T.	0.04	0.05	0.04	0.55	0.26	0.33	0.58	0.38	0.21	0.03	0.66	0.07	0.00	0.14	4.82

(a) Weighing gauge. (b) Float gauge.

TABLE XIII.—*Excessive precipitation, by stations, for July, 1895.*

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Alabama.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Citronelle				1.40	0 35	20
Clanton				1.31	0 45	3
Do				1.30	0 30	5
Eufaula *a*				1.17	1 00	19
Evergreen		2.90	3-4			
Goodwater		2.50	5			
Madison				1.22	1 00	7
Pushmataha		2.52	3			
Tuscaloosa				1.60	1 00	14
Arizona.						
Calabasas				1.03	1 00	31
Arkansas.						
Dallas	10.38					
Fayetteville	11.60					
Forrest		2.52	2-3			
Fort Smith	14.99	3.90	31			
Helena *a*				1.00	1 00	4
Hot Springs *a*				1.25	1 00	23
Hot Springs (near)	10.50					
Lonoke		2.62	13			
Mossville	10.57					
New Gascony				1.67	1.30	30
Newport *b*	10.25					
Ozark	13.64	3.35	31			
Pocahontas	10.52	4.90	3	1.55	1 00	27
Wiggs	12.91	3.75	24-25			
Winslow	16.74	4.06	2-3			
Do		5.95	31			
Witts Springs	11.57					
Colorado.						
Cope		2.60	1			
Denver				1.18	1 00	30
Divide Experimental Station				1.09	0 42	12
Gold Hill				1.10	0 45	31
Holly		2.56	23			
Lamar		4.28	23-23			
Longmont				1.41	1 00	30
Springfield		4.48	22			
Vilas		2.95	21			
Florida.						
Amelia		2.90	26			
Brooksville	12.33	4.05	6	1.19	0 20	26
Clermont		2.61	4			
Earnestville	12.94	3.12	1	3.12	1 50	1
Gainesville	10.38					
Jacksonville	11.31	4.55	26-27	1.86	1 00	26
Do				1.29	1 00	31
Jupiter				1.40	0 50	31
Lake City		3.13	16-17	2.97	1 00	17
Moseley Hall	13.56	5.07	17-18	3.30	3 00	18
Orange Park		2.55	15			
Plant City	12.61	5.07	11-12	2.42	1 50	11
Do				2.65	1 00	12
Tallahassee				1.56	1 30	14
Tampa	10.63					
Titusville				1.60	1 15	5
Georgia.						
Athens *a*		2.63	7	2.63	2 00	7
Blakely	11.91	4.50	4			
Clayton		3.55	19			
Elberton		2.50	7			
Lumpkin				1.45	0 30	1
Millen				1.88	1 30	20
Morgan				1.46	1 00	19
Reynolds				1.15	0 25	15
Rome		2.62	9	1.26	1 00	2
Savannah		2.92	13-14	2.28	1 00	13
Do		2.75	25-26	1.36	1 00	25
Washington				1.59	0 40	22
Way Cross				1.00	0 55	19
Illinois.						
Albion		3.45	6			
Alexander		2.90	27			
Altamont				1.82	1 30	8
Bloomington		3.23	17			
Bushnell				1.16	1 00	7
Cambridge		2.70	18-19			
Carlyle	10.42					
Clear Creek		3.90	19-20			
East Peoria		3.50	17	1.75	1 00	26
Golconda		4.01	23-24			
Greenville				1.07	0 45	14
Knoxville		2.75	18-19			
Do		2.50	26			
La Harpe				1.18	1 00	19
Lanark				1.32	0 15	18
Lexington		5.20	17			
Loami		2.85	27			
Louisville		2.80	6-7			
McLeansboro		2.66	6			
Olney *a*		3.28	6-7	1.14	0 56	19
Olney *b*		3.00	6			
Palestine				1.70	0 30	22
Peoria *a*		4.03	16-17			
Peoria *b*		4.09	17			
Rantoul		2.88	17			
Rose Hill		2.50	6			
Do		2.50	22			
Tampico		2.75	16			
Do		3.05	26	3.05	2 35	26
Zion				2.08	1 30	26

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Indiana.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Degonia Springs		4.32	6-7			
Evansville		3.18	7			
Laconia		4.00	23-24			
Marengo		3.50	24			
Mount Vernon		3.62	6-7			
Vincennes		3.63	7			
Indian Territory.						
Healdton		2.89	7-8			
Kemp	11.75	4.00	11			
Lehigh		2.61	11			
Tulsa	10.30	3.10	13			
Iowa.						
Amana		3.69	18-19			
Clarinda		3.93	18-19			
Clinton				2.34	1 15	26
College Springs		5.84	18			
Cresco		3.11	18	2.06	2 00	18
Davenport				1.50	1 00	18
Garden Grove		2.86	18			
Grundy Center				1.50	1 30	18
Iowa City	10.10	4.67	18-19			
Mount Ayr		5.00	18-19			
Newton				2.08	2 00	18
Sidney		3.39	18-19			
Toledo				1.42	1 00	18
Villisca		4.05	18-19			
Wilton Junction		4.90	18			
Winterset		3.68	7			
Kansas.						
Atchinson		3.07	28			
Beloit		6.34	4			
Columbus	11.03	2.96	5	4.00	1 30	7
Do		4.10	7			
Downs				1.46	1 25	20
Dresden		3.00	2			
Fort Riley		4.05	4			
Fort Scott	12.17	2.65	4			
Gove		2.50	3			
Halstead		2.95	5	2.95	2 50	5
Hutchinson		4.75	4			
Ionia		2.79	5			
Johnson		4.18	22-23	1.26	0 45	19
Lawrence	10.06	3.61	17-18			
Do		2.51	29-30			
Lebo		3.32	4-5			
Manhattan *b*		5.58	4-5			
Manhattan *c*		5.60	4-5			
Morton	12.31	3.10	19			
Do		7.50	21-23			
Ottawa	10.31	4.08	4-5			
Do		2.70	18			
Sedan				1.50	0 40	5
Sharon Springs				2.00	1 15	1
Topeka		3.37	4-5			
Do		3.01	18			
Wakefield		3.30	4			
Kentucky.						
Bowling Green *a*		2.54	16			
Bowling Green *b*		2.52	16			
Cromwell				1.96	1 30	24
Earlington		2.77	6			
Henderson		2.95	7			
Louisa		4.44	23-24			
Marrowbone		2.59	24			
Russellville		4.04	6-7			
Louisiana.						
Abbeville	11.53	3.60	23	1.65	1 00	18
Amite		3.29	21			
Cheneyville		2.55	23			
Franklin	11.27	3.12	21			
Do		2.86	26			
Grand Coteau		3.00	21			
Houma		2.60	22	2.60	2 10	22
Lake Charles		3.80	22-23	2.80	2 00	22
Lawrence		4.55	20			
Mellville				2.40	2 00	9
Minden				1.28	1 00	23
Opelousas				1.95	1 00	20
Rayne		2.79	23			
Schriever				2.00	1 30	18
Shreveport		2.98	22-23			
Southern University	11.15	2.95	9	2.95	2 30	9
Do				1.00	1 00	24
Thibodeaux		4.58	21			
West Bend		2.50	30	1.05	0 30	27
White Sulphur Springs		2.67	9			
Maryland.						
Baltimore				1.05	1 00	5
Cherryfields		3.55	1			
Massachusetts.						
Fitchburg *a*		4.13	9	4.13	3 15	9
Framingham		2.58	30			
Hadley				1.00	1 00	22
Lake Cochituate		2.57	30			
Minnesota.						
Cambridge				1.64	1 00	4
Grand Meadow		2.57	18			
Minneapolis (W. B.)		2.94	18			
Minneapolis *a*		2.88	18			
Minneapolis *b*		2.96	18			
New Ulm		3.58	18			

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
Minnesota—Cont'd.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Reeds Landing		4.00	18			
St. Olaf				1.10	1 00	4
St. Paul		3.19	18	1.30	1 00	18
St. Peter		3.59	18			
Wabasha		4.34	18			
Wilmar		2.71	20			
Mississippi.						
Batesville				2.00	2 00	14
Holly Springs		3.41	2–3			
Leakesville	11.70	4.10	29			
Magnolia	12.29	4.98	20–22			
Meridian				1.10	1 00	4
Woodville				1.48	1 00	18
Missouri.						
Akron		4.50	19			
Appleton City		2.50	28			
Arthur		3.11	30			
Bagnell	13.08	5.00	4–6			
Birch Tree	14.51	6.52	4	3.83	1 15	5
Do		3.83	6			
Bluffton		4.53	5–6	2.17	2 00	13
Brunswick		2.58	5			
Conception		2.65	18–19			
Eldon	10.76	3.21	20			
Emma		2.60	5			
Fairport		3.35	19			
Fayette				2.02	1 15	29
Fulton		4.00	4–5			
Half Way		3.09	5			
Harrisonville		3.20	30			
Houston		3.96	4			
Jefferson City		5.00	5–6			
Kansas City		4.57	28	1.23	1 00	19
Do				3.10	1 56	28
Lamar		2.59	27			
McCune	13.29	3.83	14			
Marble Hill		3.50	29–30			
Mexico		3.50	5			
Mineral Spring				1.28	1 00	21
Neosho		2.83	5	1.80	0 30	5
Nevada				1.55	1 00	28
New Haven		2.63	5–6			
New Madrid		2.64	24			
Phillipsburg		2.79	5			
Pickering		2.87	18–19			
Platte River		3.90	5			
Potosi		2.53	17			
Princeton		2.86	17			
St. Charles		2.80	29			
St. Louis		2.92	29			
Stellada		2.60	28			
Sublett	11.47	4.00	17	4.00	3 00	17
Versailles		3.60	4			
Warrenton		3.14	29			
Nebraska.						
Beaver City				1.77	1 00	6
Nebraska City				2.42	2 00	28
Nemaha				2.90	2 20	28
Ough				2.00	2 00	13
Republican				1.60	1 30	13
Rulo		3.35	28			
Santee Agency				1.10	0 45	18
Sutton		2.57	19	2.57	2 20	19
Tecumseh		3.10	17			
Tekamah		2.70	4	2.70	2 00	4
Wakefield				1.17	1 00	28
Wilsonville				1.20	0 45	13
New Jersey.						
Billingsport		2.64	4–5			
Plainfield				1.19	0 25	30
Toms River		4.12	16	1.49	1 05	16
New Mexico.						
East Las Vegas		2.70	23			
Fort Union		2.54	10			
Gallinas Spring	10.05					
Raton		4.05	22–23			
North Carolina.						
Bailey				1.22	0 20	25
Falkland		3.45	1			

TABLE XIII.—*Excessive precipitation*—Continued.

Stations.	Monthly rainfall 10 inches, or more.	Rainfall 2.50 inches, or more, in 24 hours.		Rainfall of 1 inch, or more, in one hour.		
		Amt.	Day.	Amt.	Time.	Day.
North Carolina—Cont'd.	*Inches.*	*Inches.*		*Ins.*	*h. m.*	
Hatteras		2.80	1–2			
Henderson		4.75	24–25			
Littleton		3.50	24			
Oak Ridge		4.08	23–24			
Raleigh				1.07	0 30	21
Roxboro		3.00	24			
Southport				1.69	1 35	12
Do				1.04	0 20	11
Weldon		2.61	24–25			
North Dakota.						
Lemert				1.18	1 00	5
Portal		3.60	6			
Power				1.85	1 00	5
Ohio.						
Bladensburg				1.00	1 00	20
Cardington				1.03	0 30	19
Clarksville		3.00	15			
Dupont				1.00	0 30	19
Norwalk				1.00	1 00	15
Oklahoma.						
Alva				1.10	1 00	7
Arapahoe				1.70	1 30	22
Prudence		2.65	7	2.65	2 00	7
Sac and Fox Agency				2.80	1 30	30
Rhode Island.						
Block Island		3.87	*			
Lonsdale				1.10	1 00	21
South Carolina.						
Columbia		3.10	15–16	1.58	0 58	15
Little Mountain		3.14	15			
Port Royal				2.00	0 45	14
St. Matthews		2.67	7–8			
St. Stephens				1.60	1 00	25
Shaws Fork		3.10	6			
Statesburg		2.72	15–16			
South Dakota.						
Buffalo Gap				1.40	1 00	31
Tennessee.						
Bolivar		2.80	3			
Clarksville		4.40	6–7	2.20	1 30	6
Covington		2.86	2–3			
Elizabethtown		3.02	24–25			
Mount Carmel		3.30	3			
Nashville				1.32	0 28	8
Do				1.42	1 00	15
Rogersville		4.12	24–25			
Springdale	10.83	4.00	24–25			
Texas.						
Angleton				1.10	1 00	21
Arthur		3.75	10–11			
Ballinger		2.53	12			
Chillicothe		3.50	10			
Corsicana (?)				2.25	1 30	25
Durham		3.60	12			
Estelle				1.33	1 00	10
Galveston				1.18	1 00	21
Grapevine				1.46	1 00	2
Hale Center				1.75	1 00	30
Hewitt		4.20	22	4.15	1 40	22
Marshall	11.75	7.50	23			
Paris		5.28	10–12			
Roby	12.07	10.60	11–13			
Sulphur Springs	10.25	6.00	1–2			
Do		3.25	10			
Virginia.						
Abingdon		3.56	24–25			
Callaville		3.74	24–25			
Fredericksburg				1.78	0 50	30
Salem				2.05	0 45	22
Saltville		2.60	30			
Sunbeam				1.20	1 00	23
Wisconsin.						
Delavan		3.25	7			
La Crosse				1.59	0 38	18
Lancaster				1.35	1 00	26
Pepin		3.39	17–18			

* June 30–July 1.

TABLE XIV.—*Maximum rainfall in one hour or less, July*, 1895.

Stations.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Atlanta, Ga.	0.21	21	0.29	21	0.59	21
Baltimore, Md.	0.30	16	0.55	16	1.05	5
Bismarck, N. Dak.	0.24	18	0.35	18	0.50	18
Boston, Mass.	0.27	14	0.33	14	0.43	9
Buffalo, N. Y.	0.13	15, 25	0.16	25	0.30	27
Chicago, Ill.*						
Cincinnati, Ohio	0.16	7	0.25	7	0.65	7
Cleveland, Ohio*	0.08	15	0.15	15	0.25	15
Denver, Colo.	0.23	30	0.42	30	1.18	30
Detroit, Mich.	0.32	15	0.51	15	0.65	15
Dodge City, Kans.	0.20	22	0.33	22	0.85	22
Duluth, Minn.	0.19	28	0.29	28	0.47	28
Eastport, Me.	0.06	10, 13	0.12	10	0.53	10
Galveston, Tex.	0.30	21	0.50	21	1.18	21
Indianapolis, Ind.	0.49	30	0.64	30	0.75	18
Jacksonville, Fla.	0.35	26	0.58	26	1.86	26
Jupiter, Fla.	0.25	5, 31	0.45	5, 31	1.44	31
Kansas City, Mo.	0.47	28	0.73	28	2.30	28
Key West, Fla.	0.11	5	0.13	5	0.17	5
Little Rock, Ark.	0.30	2	0.50	2	0.77	2
Louisville, Ky.	0.17	1, 15	0.34	15	0.54	15
Marquette, Mich.	0.05	8	0.08	8	0.20	11
Memphis, Tenn.	0.25	13	0.34	13	0.50	4
Milwaukee, Wis.	0.25	18	0.32	18	0.45	18

TABLE XIV.—*Maximum rainfall*—Continued.

Stations.	Maximum rainfall in—					
	5 min.	Date.	10 min.	Date.	1 hour.	Date.
	Inch.		*Inch.*		*Inch.*	
Nantucket, Mass.	0.20	6	0.21	6	0.34	13
Nashville, Tenn.	0.75	8	1.10	8	1.42	15
New Orleans, La.	0.35	19	0.40	19	0.82	24
New York, N. Y.	0.22	30	0.35	30	0.59	21
Norfolk, Va.	0.23	16	0.36	16	0.55	16
Omaha, Nebr.	0.18	4	0.32	4	0.50	4
Philadelphia, Pa.	0.20	5	0.25	5	0.63	21
Pittsburg, Pa.	0.25	27	0.25	27	0.30	8
Portland, Me.	0.14	27	0.22	9, 27	0.55	9
Portland, Oreg.	0.02	4	0.04	4	0.08	4
Rochester, N. Y.	0.11	8	0.13	8	0.23	30
St. Louis, Mo.	0.39	29	0.64	29	0.97	29
St. Paul, Minn.	0.32	6	0.45	18	1.30	18
Salt Lake City, Utah					0.05	28
San Diego, Cal.†						
San Francisco, Cal.					0.01	4
Savannah, Ga.	0.58	13	1.05	13	2.28	13
Seattle, Wash.	0.01	4	0.02	4	0.08	4
Vicksburg, Miss.	0.32	24	0.48	24	0.67	24
Washington, D. C.	0.16	27	0.25	27	0.46	16
Wilmington, N. C.	0.27	24	0.38	24	0.66	12

*Record incomplete. †No precipitation.

Meteorological observations, St. Lawrence Island, Alaska.

October, 1894.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	....	....	....	41	34	....	....	....	n.	3	n.	2	n.	1	10	0	10
2	....	....	....	39	31	....	....	....	sw.	2	sw.	2	sw.	2	10	10	10
3	....	....	....	42	36	....	....	....	nw.	1	nw.	1	nw.	1	10	10	6
4	....	....	....	39	31	....	....	‡	nw.	2	nw.	2	nw.	3	10	10	10
5	....	....	....	36	26	....	....	†	n.	3	n.	3	n.	2	10	10	6
6	....	....	....	29	25	....	....	†	n.	3	n.	3	w.	2	10	8	10
7	....	....	....	38	26	....	....	....	e.	2	w.	2	w.	2	10	6	10
8	....	....	....	36	32	....	....	....	ne.	2	ne.	2	ne.	2	10	10	10
9	....	....	....	35	30	....	....	....	ne.	2	ne.	2	ne.	2	10	6	10
10	....	....	....	31	26	....	....	....	ne.	1	ne.	1	ne.	1	9	8	3
11	....	....	....	31	27	....	....	....	n.	3	n.	3	n.	4	7	5	6
12	....	....	....	38	25	....	....	....	w.	3	n.	3	n.	3	9	9	9
13	....	....	....	38	24	....	....	....	n.	4	n.	4	n.	4	10	9	10
14	....	....	....	39	24	....	....	....	n.	3	n.	3	n.	3	10	8	4
15	....	....	....	39	25	....	....	....	se.	1	se.	2	se.	3	4	10	10
16	....	....	....	32	28	....	....	*	e.	4	e.	3	....	0	10	10	9
17	....	....	....	32	23	....	....	*	se.	1	se.	2	e.	3	4	9	10
18	....	....	....	33	22	....	....	....	....	0	e.	1	....	0	3	2	0
19	....	....	....	32	24	....	....	....	ne.	3	ne.	2	ne.	2	8	6	8
20	....	....	....	29	24	....	....	....	ne.	3	n.	3	n.	3	9	9	10
21	....	....	....	25	24	....	....	....	n.	3	n.	3	n.	3	10	10	10
22	....	....	....	27	24	....	....	†	w.	3	ne.	2	ne.	1	9	9	9
23	....	....	....	27	24	....	....	....	ne.	2	ne.	2	ne.	2	9	8	10
24	....	....	....	27	21	....	....	†	....	....	w.	1	ne.	2	6	4	10
25	....	....	....	23	20	....	....	....	n.	2	n.	2	n.	2	9	7	10
26	....	....	....	23	20	....	....	....	nw.	1	nw.	2	nw.	2	3	3	5
27	....	....	....	25	16	....	....	*	nw.	1	nw.	2	ne.	4	10	9	10
28	....	....	....	30	15	....	....	†	s.	1	s.	1	....	....	9	9	0
29	....	....	....	30	18	....	....	....	n.	3	n.	3	n.	3	10	10	10
30	....	....	....	24	20	....	....	†	n.	3	n.	3	e.	2	10	8	10
31	....	....	....	25	20	....	....	....	n.	3	n.	3	n.	2	10	7	5
Mean	....	....	....	30.3	24.7	....	....	....	....	2.2	....	2.3	....	3.1	8.6	7.7	7.9

Depth of snow on ground on the 15th, 0.0 inch; at end of month, 3 inches.
Number days 0.01 inch or more rain or melted snow fell, 2.
*Snow. †A little snow. ‡Misty.

Meteorological observations, St. Lawrence Island, Alaska.

November, 1894.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	....	....	....	23	17	....	....	....	ne.	1	ne.	1	....	....	3	3	0
2	....	....	....	25	18	....	....	....	w.	1	s.	1	....	....	2	8	0
3	....	....	....	25	16	....	....	....	e.	1	e.	4	e.	3	0	5	0
4	....	....	....	25	16	....	....	....	e.	2	e.	1	....	....	0	3	0
5	....	....	....	26	13	....	....	....	e.	1	e.	1	....	....	0	4	0
6	....	....	....	27	13	....	....	....	....	....	....	....	se.	1	....	....	....
7	....	....	....	29	22	....	....	....	....	....	....	....	ne.	1	10	10	10
8	....	....	....	28	18	....	....	....	ne.	2	ne.	2	ne.	3	10	10	10
9	....	....	....	30	15	....	....	....	ne.	3	ne.	4	8	8	10	10	10
10	....	....	....	15	6	....	....	....	n.	5	n.	5	n.	4	9	9	8
11	....	....	....	13	5	....	....	....	n.	4	n.	4	....	....	2	0	0
12	....	....	....	16	8	....	....	....	n.	1	n.	2	w.	2	0	0	0
13	....	....	....	29	12	....	....	....	w.	3	w.	3	w.	3	10	9	10
14	....	....	....	32	28	....	....	....	w.	2	w.	2	....	....	10	10	10
45	....	....	....	31	26	....	....	....	n.	1	e.	2	ne.	3	10	10	9
16	....	....	....	35	19	....	....	....	ne.	3	ne.	3	ne.	4	10	10	10
17	....	....	....	21	16	....	....	....	e.	4	e.	4	ne.	3	10	10	10
18	....	....	....	19	16	6 a.	8 p.	1 in.	e.	4	e.	4	e.	4	10	10	10
19	....	....	....	19	18	....	....	....	ne.	5	ne.	5	ne.	5	10	10	10
20	....	....	....	30	12	....	....	....	ne.	5	ne.	5	ne.	4	10	8	5
21	....	....	....	12	16	....	....	....	ne.	2	ne.	2	....	....	10	8	10
22	....	....	....	10	7	....	....	....	ne.	2	ne.	2	ne.	2	10	10	10
23	....	....	....	18	8	....	....	....	w.	1	se.	2	s.	3	10	8	10
24	....	....	....	34	18	....	....	....	s.	4	s.	4	s.	4	10	10	10
25	....	....	....	32	20	....	....	†	w.	1	s.	1	sw	2	2	4	8
26	....	....	....	34	17	....	....	†	sw.	3	sw.	3	sw.	3	10	9	10
27	....	....	....	24	12	....	....	....	e.	2	s.	2	e.	2	2	4	2
28	....	....	....	24	15	....	....	†	e.	5	e.	4	e.	4	10	10	10
29	....	....	....	30	19	....	....	....	e.	4	e.	4	e.	4	10	10	10
30	....	....	....	28	14	....	....	†	sw.	1	sw.	2	....	....	10	6	0
Mean	....	....	....	23.6	15	....	....	....	....	2.4	....	2.6	....	2.2	6.9	7.5	6.6

Depth of snow on the ground on the 15th, 2; at end of month, 6 inches.
Number of days 0.01 inch or more rain or melted snow fell, 1.
† A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

December, 1894.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	....	....	....	20	8	....	....	†	e.	2	e.	2	e.	3	10	8	10
2	....	....	....	18	11	....	....	*	ne.	2	ne.	1	ne.	1	10	8	8
3	....	....	....	12	— 3	....	....	....	ne.	2	ne.	2	ne.	2	10	8	2
4	....	....	....	2	— 7	....	....	....	n.	2	n.	2	n.	2	3	3	0
5	....	....	....	— 2	— 8	....	....	....	ne.	2	ne.	2	ne.	2	1	2	0
6	....	....	....	— 2	— 8	....	....	....	ne.	1	ne.	1	....	....	2	1	0
7	....	....	....	— 5	—12	....	....	....	....	....	....	....	....	....	0	0	0
8	....	....	....	5	—10	....	....	....	ne.	1	ne.	1	ne.	1	0	0	10
9	....	....	....	2	— 5	....	....	....	ne.	1	ne.	1	ne.	1	6	6	10
10	....	....	....	— 2	— 8	....	....	....	ne.	1	ne.	1	ne.	1	10	6	0
11	....	....	....	— 5	—10	....	....	....	ne.	2	ne.	2	ne.	2	3	4	0
12	....	....	....	— 7	—12	....	....	....	ne.	2	ne.	2	ne.	2	0	3	0
13	....	....	....	— 9	—18	....	....	....	ne.	2	ne.	3	0	0	0	3	3
14	....	....	....	—10	—15	....	....	....	ne.	3	ne.	3	ne.	2	8	8	4
15	....	....	....	—12	—16	....	....	....	ne.	2	ne.	2	ne.	2	0	0	0
16	....	....	....	3	—18	5 a.	4 p.	4 in.	e.	3	e.	4	e.	2	10	10	10
17	....	....	....	30	— 4	....	....	....	w.	3	w.	3	w.	3	0	0	2
18	....	....	....	— 3	— 9	7 p.	?	2 in.	n.	1	n.	1	s.	3	0	0	10
19	....	....	....	32	— 5	....	....	....	s.	3	s.	3	s.	3	10	10	10
20	....	....	....	33	18	....	....	....	s.	2	w.	2	....	....	10	10	0
21	....	....	....	18	3	....	....	....	....	....	ne.	1	ne.	2	0	0	0
22	....	....	....	16	3	2 p.	5 p.	?	e.	2	e.	3	e.	3	10	10	0
23	....	....	....	25	9	....	....	....	e.	2	e.	3	3	8	10	10	10
24	....	....	....	28	24	....	....	†	se.	3	se.	3	se.	4	10	10	10
25	....	....	....	31	26	....	....	†	se.	2	se.	2	sw.	3	10	8	10
26	....	....	....	30	8	....	....	†	....	....	....	....	e.	3	e.	3	3	5	10
27	....	....	....	30	24	....	....	*	se.	2	e.	3	se.	2	10	10	10
28	....	....	....	30	15	3 p.	8 p.	2 in.	se.	2	se.	2	ne.	2	10	10	10
29	....	....	....	16	11	....	....	....	....	....	....	....	w.	1	w.	1	10	10	0
30	....	....	....	17	8	....	....	....	w.	1	w.	1	w.	1	10	5	2
31	....	....	....	20	12	....	....	....	....	....	....	....	se.	1	....	....	0	0	0
Mean	....	....	....	12.0	0.3	....	....	....	....	1.65	....	1.94	....	1.90	5.4	5.3	4.5

Depth of snow on the 15th, 6 inches; at end of month, 12 inches
Number of days on which 0.01 inch of rain or melted snow fell, 3.
*Snow. †A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

January, 1895.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	7	10	11	13	5	....	....	....	w.	1	s.	1	s.	2	1	3	5
2	9	10	7	13	5	....	....	....	....	....	....	....	s.	1	0	0	0
3	16	12	8	7	18	....	....	....	ne.	1	ne.	1	se.	2	10	3	0
4	21	17	13	25	4	....	....	....	w.	2	se.	1	s.	1	0	0	0
5	19	20	22	22	8	....	....	....	sw.	1	nw.	1	sw.	2	10	10	10
6	21	21	20	25	20	....	....	....	sw.	2	w.	2	sw.	3	10	10	10
7	21	12	11	24	11	....	....	....	w.	2	....	....	s.	1	4	0	0
8	15	20	14	21	9	....	....	....	sw.	2	w.	1	w.	3	6	0	0
9	7	6	2	14	— 1	....	....	....	w.	2	w.	2	w.	2	0	0	0
10	— 4	— 6	—10	3	—10	....	....	†	w.	3	n.	3	....	....	3	10	3
11	— 7	—13	—15	— 7	—15	....	....	†	ne.	2	n.	3	n.	4	10	10	4
12	—13	—13	—16	—13	—16	....	....	†	ne.	4	ne.	3	ne.	2	10	10	0
13	—17	—14	—14	—12	—17	....	....	....	n.	2	ne.	1	ne.	1	0	0	0
14	—16	—10	— 9	— 9	—21	7 p.	(?)	*	n.	1	e.	2	e.	3	3	10	10
15	— 7	— 9	0	0	—10	(?)	8 p.	6 in.	se.	4	e.	3	e.	2	10	10	7
16	7	7	6	10	0	....	....	....	....	....	w.	3	w.	3	10	8	10
17	1	— 1	6	6	— 1	7 p.	(?)	*	se.	1	e.	1	e.	3	4	10	10
18	3	0	— 3	6	— 3	....	....	....	ne.	3	ne.	3	ne.	2	3	5	2
19	— 2	8	12	12	— 6	10a.	9 p.	*	e.	2	e.	4	e.	5	10	10	10
20	22	24	25	25	12	....	....	....	se.	2	sw.	2	sw.	3	10	8	10
21	27	24	11	28	11	....	....	....	se.	3	s.	2	....	....	10	4	0
22	9	11	17	17	8	....	....	....	....	....	s.	2	s.	2	0	5	10
23	14	17	7	17	7	....	....	....	....	....	e.	2	ne.	2	0	8	0
24	6	5	6	7	3	....	....	....	ne.	2	ne.	1	ne.	1	0	0	0
25	6	2	— 1	6	— 1	....	....	....	ne.	2	ne.	3	ne.	3	0	0	0
26	— 1	5	5	6	— 2	....	....	*	ne.	3	ne.	3	ne.	3	10	10	10
27	— 2	— 3	— 4	5	— 4	....	....	....	ne.	2	ne.	2	ne.	3	10	4	0
28	— 4	— 2	— 3	— 2	— 4	....	....	....	ne.	2	ne.	2	ne.	2	10	10	10
29	— 1	— 2	— 3	— 1	— 3	....	....	....	ne.	3	ne.	4	ne.	4	10	10	10
30	— 2	— 1	— 3	— 1	— 4	....	....	....	ne.	4	ne.	4	ne.	4	10	5	0
31	— 4	— 1	— 2	— 1	— 4	....	....	....	ne.	4	ne.	4	ne.	3	3	2	0
Mea	4.9	5.0	3.9	8.6	—0.1	....	....	....	....	2.0	....	2.1	....	2.4	5.4	5.3	4.0

Depth of snow on ground on the 15th, 15 inches; at end of month, 15 inches.
Number of days on which 0.01 inch rain or melted snow fell, 5.
Fifth foggy; 20th and 21st squally.
* Snow. † A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

February, 1895.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	0	3	3	3	0	.....	.....	.....	ne.	2	ne.	2	ne.	2	0	0	0
2	3	3	— 3	3	— 3	.....	.....	.....	ne.	2	ne.	2	ne.	2	0	0	0
3	— 3	2	— 2	4	— 4	.....	.....	.....	ne.	2	ne.	2	ne.	1	0	0	0
4	— 3	4	— 2	5	— 4	.....	.....	.....	ne.	1	.....	.....	.....	.....	0	0	0
5	— 3	— 9	— 9	0	—10	.....	.....	.....	ne.	3	ne.	3	ne.	3	3	5	0
6	—11	—11	—15	— 9	—15	.....	.....	.....	ne.	3	ne.	3	ne.	3	0	0	0
7	—23	—24	—23	—15	—25	.....	.....	.....	n.	3	n.	4	n.	2	0	3	3
8	—24	—21	—21	—21	—25	.....	.....	.....	n.	3	n.	3	n.	3	0	7	3
9	—26	—21	—23	—20	—27	.....	.....	.....	ne.	1	ne.	1	ne.	2	0	0	2
10	—16	—13	— 8	— 8	—23	.....	.....	.....	ne.	5	ne.	5	ne.	5	10	10	10
11	— 7	— 3	— 2	— 3	—10	.....	.....	.....	ne.	5	ne.	4	ne.	5	10	10	10
12	3	8	8	9	— 2	.....	.....	.....	ne.	4	ne.	3	ne.	2	10	10	10
13	9	10	10	11	8	.....	.....	*	ne.	4	ne.	4	ne.	4	10	9	10
14	8	8	5	10	5	.....	.....	.....	ne.	4	ne.	4	ne.	4	10	10	10
15	1	1	— 3	5	— 3	.....	.....	.....	ne.	3	ne.	2	ne.	2	10	10	2
16	— 7	— 5	— 8	— 3	— 8	.....	.....	.....	ne.	4	ne.	4	ne.	5	7	2	0
17	— 8	— 8	— 8	— 7	— 9	.....	.....	.....	ne.	4	n.	4	n.	4	0	3	0
18	— 9	— 4	— 9	— 4	— 9	.....	.....	.....	ne.	3	ne.	2	ne.	2	0	0	0
19	—13	—19	—13	— 9	—13	.....	.....	.....	n.	3	ne.	2	ne.	2	0	0	0
20	—11	— 6	— 5	— 5	—13	.....	.....	.....	ne.	2	ne.	2	ne;	2	8	4	10
21	0	9	— 7	14	— 7	.....	.....	†	ne.	3	ne.	2	se.	1	10	0	0
22	— 1	4	0	6	— 7	.....	.....	*	.....	.....	ne.	2	ne.	3	10	10	10
23	—11	— 8	—16	0	—16	.....	.....	.....	ne.	4	ne.	4	ne.	5	3	6	0
24	—23	—21	—27	—16	—27	.....	.....	.....	ne.	4	ne.	4	ne.	3	5	2	0
25	—30	—17	—27	—17	—31	.....	.....	.....	ne.	1	ne.	1	.....	.....	0	0	0
26	—29	—19	—25	—18	—30	.....	.....	.....	ne.	1	ne.	1	.....	.....	0	3	0
27	—24	— 5	—22	0	—25	.....	.....	.....	e.	1	.....	.....	ne.	1	1	0	0
28	—20	—11	—16	— 9	—22	.....	.....	.....	ne.	1	ne.	2	ne.	3	0	0	0
M'n	—2.9	—6.2	—9.5	—3.4	—12.7	.....	.....	.....	.....	2.7	.....	2.6	.....	2.5	3.8	3.8	2.9

Depth of snow on ground on the 15th, 18 inches; at end of month, 18 inches.
Number of days on which 0.01 inch or more rain or melted snow fell, 2.
* Snow. † A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

April, 1895.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	—9	12	0	14	—18	.....	.....	.....	.....	.....	.....	.....	ne.	2	3	6	8
2	2	14	1	18	— 2	.....	.....	.....	ne.	1	.....	.....	ne.	1	8	3	0
3	0	18	11	20	— 6	.....	.....	.....	.....	.....	e.	2	e.	1	0	9	10
4	18	24	13	26	11	.....	.....	.....	nw.	1	e.	1	e.	1	10	10	10
5	11	15	7	17	7	.....	.....	†	e.	3	ne.	2	ne.	1	10	10	10
6	6	14	8	15	4	.....	.....	.....	ne.	2	ne.	2	ne.	1	10	9	9
7	2	14	6	16	— 1	.....	.....	.....	e.	2	e.	2	ne.	1	9	5	9
8	10	16	12	18	5	.....	.....	†	e.	4	e.	2	ne.	1	10	10	10
9	12	20	7	24	7	.....	.....	.....	ne.	2	ne.	1	ne.	1	8	7	6
10	7	12	8	15	7	.....	.....	.....	e.	2	e.	2	e.	2	10	8	10
11	6	20	8	23	2	.....	.....	.....	ne.	2	ne.	2	ne.	2	6	6	8
12	5	8	2	12	2	.....	.....	.....	ne.	2	ne.	3	ne.	3	6	10	10
13	—1	10	5	11	— 1	.....	.....	.....	n.	4	n.	3	n.	3	2	6	1
14	6	17	10	18	4	.....	.....	.....	n.	4	n.	3	n.	3	1	0	0
15	10	19	13	21	9	.....	.....	.....	n.	3	ne.	3	w.	3	0	0	0
16	8	18	7	20	6	.....	.....	.....	ne.	2	ne.	3	ne.	2	0	0	0
17	6	21	7	22	2	.....	.....	.....	ne.	2	ne.	2	ne.	1	1	0	0
18	5	28	6	29	1	.....	.....	.....	ne.	1	ne.	2	ne.	2	0	0	0
19	5	34	8	35	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	0
20	16	35	16	36	4	.....	.....	.....	w.	1	w.	1	w.	1	3	1	10
21	16	36	23	38	13	.....	.....	.....	sw.	2	sw.	2	s.	1	10	10	10
22	26	36	25	37	23	.....	.....	.....	se.	1	ne.	2	ne.	1	10	10	10
23	24	29	26	32	23	.....	.....	.....	s.	1	sw.	2	sw.	3	10	3	3
24	25	27	25	28	22	.....	.....	.....	sw.	4	sw.	3	sw.	3	10	10	10
25	26	24	18	28	18	.....	.....	†	w.	2	n.	2	n.	2	10	10	10
26	13	23	23	26	7	.....	.....	.....	s.	2	sw.	2	sw.	3	1	1	10
27	24	26	25	30	23	.....	.....	†	n.	2	n.	2	n.	3	10	10	10
28	20	23	16	26	16	.....	.....	.....	n.	2	n.	3	ne.	3	1	5	10
29	14	22	14	23	12	.....	.....	.....	ne.	4	ne.	3	ne.	3	5	3	0
30	17	28	20	30	12	.....	.....	.....	ne.	2	ne.	1	ne.	1	0	0	0
Mean	10.9	21.1	12.3	23.3	7.1	.....	.....	.....	.....	2.0	.....	1.9	.....	1.8	5.5	5.4	6.1

Depth of snow on the ground on the 15th, 18 inches; at end of month, 18 inches.
Number of days 0.01 inch or more rain or melted snow fell, 0.
† A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

March, 1895.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	—13	—4	4	4	—16	.....	.....	†	ne.	4	ne.	4	ne.	4	10	10	6
2	24	28	14	30	4	.....	.....	†	ne.	3	se.	3	se.	3	10	10	10
3	4	12	14	16	4	.....	.....	.....	sw.	2	se.	3	.....	.....	4	5	10
4	11	17	20	20	11	.....	.....	†	ne.	3	ne.	3	ne.	2	10	10	10
5	32	32	26	32	20	.....	.....	†	e.	3	se.	3	s.	3	10	10	10
6	8	13	15	16	7	.....	.....	.....	sw.	3	s.	2	s.	2	8	10	5
7	24	27	20	28	10	.....	.....	†	s.	3	s.	3	s.	3	10	8	0
8	15	22	12	25	8	.....	.....	.....	s.	2	s.	1	.....	.....	0	0	0
9	9	12	0	12	0	.....	.....	.....	nw.	1	n.	2	n.	3	1	4	0
10	— 6	—1	—7	0	— 7	.....	.....	.....	ne.	3	ne.	3	ne.	4	3	0	0
11	— 5	—2	0	0	— 7	.....	.....	*	ne.	3	ne.	4	ne.	5	10	10	10
12	4	7	4	9	0	.....	.....	*	ne.	3	ne.	3	ne.	3	10	10	10
13	3	4	0	5	0	.....	.....	†	ne.	3	ne.	3	ne.	2	10	9	7
14	0	6	3	9	0	.....	.....	.....	ne.	1	ne.	1	.....	.....	10	10	10
15	0	3	3	3	0	.....	.....	*	ne.	3	ne.	4	ne.	4	10	10	10
16	10	9	4	11	3	.....	.....	*	ne.	3	ne.	4	ne.	4	10	10	10
17	1	4	— 1	5	— 3	.....	.....	.....	ne.	4	ne.	3	ne.	2	10	9	0
18	— 5	—1	— 7	0	— 7	.....	.....	.....	ne.	2	ne.	2	ne.	1	10	0	0
19	— 7	—2	— 6	—1	—10	.....	.....	.....	ne.	3	ne.	3	ne.	3	8	0	0
20	—13	—5	—11	—2	—14	.....	.....	.....	ne.	2	ne.	2	ne.	2	0	0	0
21	—13	—3	—11	—2	—14	.....	.....	.....	ne.	2	ne.	2	ne.	2	0	0	0
22	—12	—1	—11	1	—14	.....	.....	.....	ne.	2	ne.	1	.....	.....	0	0	0
23	—12	2	—11	3	—13	.....	.....	.....	ne.	1	ne.	1	ne.	1	0	0	0
24	—13	—1	— 9	0	—15	.....	.....	.....	ne.	2	ne.	2	ne.	2	8	3	0
25	—10	—2	—10	0	—12	.....	.....	.....	ne.	3	ne.	3	ne.	3	4	4	0
26	—12	2	—10	3	—13	.....	.....	.....	ne.	2	ne.	2	ne.	3	0	0	0
27	—11	—2	—14	0	—14	.....	.....	.....	ne.	3	ne.	3	ne.	3	0	0	0
28	—13	—7	—12	—3	—15	.....	.....	.....	ne.	3	ne.	3	ne.	3	2	1	0
29	—16	—9	—17	—8	—17	.....	.....	.....	ne.	3	ne.	3	ne.	3	2	3	0
30	—18	—2	—20	—1	—21	.....	.....	.....	ne.	2	ne.	2	e.	1	0	5	0
31	—20	8	—10	8	—23	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	5	0
Mean	—1.7	5.3	—0.9	6.7	—5.4	.....	.....	.....	.....	2.6	.....	2.4	.....	2.5	5.4	5.0	3.5

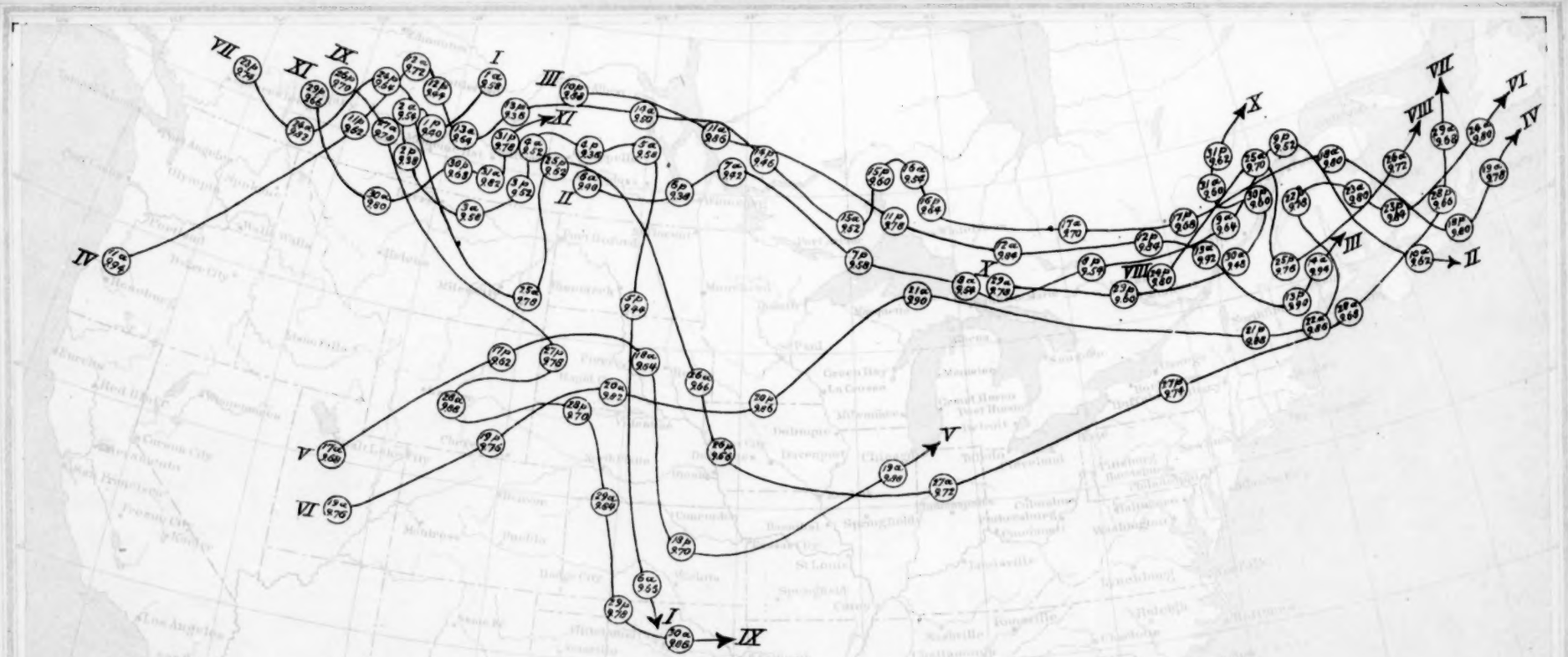
Depth of snow on the ground on the 15th, 18 inches; at end of month, 18 inches.
Number of days on which 0.01 inch of rain or melted snow fell, 4.
* Snow. † A little snow.

Meteorological observations, St. Lawrence Island, Alaska.

May, 1895.	Temperature.					Precipitation.			Wind.						Cloudiness.		
						Time of—			7 a. m.		2 p. m.		9 p. m.				
	7 a. m.	2 p. m.	9 p. m.	Maximum.	Minimum.	Beginning.	Ending.	Snowfall.	Direction.	Force.	Direction.	Force.	Direction.	Force.	7 a. m.	2 p. m.	9 p. m.
1	32	31	32	33	12	.....	.....	.....	ne.	2	ne.	2	n.	1	0	0	1
2	33	40	33	42	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	0	0	10
3	25	35	30	37	15	.....	.....	.....	sw.	2	s.	1	se.	2	10	3	10
4	18	36	24	41	12	.....	.....	.....	se.	3	ne.	3	ne.	2	10	0	0
5	26	36	25	38	19	.....	.....	.....	ne.	3	ne.	3	ne.	1	0	0	0
6	32	36	32	38	20	.....	.....	.....	ne.	3	ne.	3	ne.	3	10	9	9
7	30	30	33	34	17	9 a.	9 p.	0.09	ne.	4	ne.	4	ne.	4	10	10	10
8	27	24	21	29	21	10 a.	4 p.	0.05	e.	4	ne.	5	ne.	4	10	9	10
9	23	28	22	29	21	.....	.....	.....	ne.	4	ne.	3	ne.	2	2	2	3
10	23	30	22	36	19	.....	.....	.....	.....	.....	e.	2	e.	2	10	10	10
11	30	33	21	35	17	.....	.....	.....	ne.	4	ne.	4	ne.	4	10	10	10
12	23	36	23	30	19	.....	.....	.....	ne.	3	ne.	3	ne.	3	10	8	10
13	25	29	23	32	23	.....	.....	.....	ne.	3	ne.	3	ne.	3	10	9	10
14	30	28	23	31	19	.....	.....	.....	ne.	3	ne.	2	ne.	2	10	8	9
15	23	28	22	31	20	.....	.....	.....	ne.	3	ne.	2	ne.	1	10	6	10
16	25	28	24	30	22	.....	.....	.....	n.	2	n.	3	n.	3	10	10	10
17	26	30	23	34	23	.....	.....	.....	ne.	3	ne.	3	ne.	2	10	8	10
18	22	28	23	30	20	.....	.....	.....	ne.	3	ne.	4	ne.	4	2	3	10
19	26	26	26	30	28	1 p.	5 p.	.....	ne.	4	ne.	4	ne.	4	10	10	10
20	31	33	32	38	26	.....	.....	.....	ne.	1	se.	2	se.	2	10	6	10
21	33	36	32	39	30	.....	.....	.....	se.	1	e.	1	e.	1	10	10	10
22	35	41	32	43	30	.....	.....	.....	n.	1	w.	1	w.	1	10	6	9
23	27	33	32	35	26	.....	.....	.....	ne.	1	ne.	1	ne.	1	8	10	10
24	31	37	31	39	30	.....	.....	.....	e.	1	e.	1	e.	1	10	10	8
25	30	40	31	41	26	.....	.....	.....	ne.	1	.....	.....	s.	1	8	8	0
26	32	42	32	45	27	.....	.....	.....	.....	.....	ne.	2	w.	1	5	0	0
27	34	41	32	44	26	.....	.....	.....	n.	2	n.	1	ne.	3	0	0	9
28	32	37	30	40	30	.....	.....	.....	ne.	3	ne.	2	ne.	2	10	2	6
29	31	40	32	42	29	.....	.....	.....	ne.	2	ne.	2	ne.	1	10	0	0
30	32	40	33	42	28	.....	.....	.....	ne.	2	ne.	1	nw.	1	5	5	10
31	35	37	30	41	30	.....	.....	.....	.....	.....	ne.	1	.....	.....	10	6	10
Mean	26.4	32.6	26.2	35.4	22.3	.....	.....	.....	.....	2.2	.....	2.2	.....	2.0	7.7	5.7	7.5

Depth of snow on ground 15th, 12 inches; end of month, drifts.
Number of days 0.01 inch or more rain or melted snow fell, 3. Fog, 23d, 25th.
The figures for the precipitation on the 7th and 8th are for rain and melted snow.

Chart I. Tracks of Centers of Low Areas. July, 1895.



NOTES.

The roman letters show number and order of centers of low areas. The figures within the circles show the days of the month; the letters *a* and *p* indicate, respectively, the 8 a. m. and 8 p. m., seventy-fifth meridian time, observations.

The queries (?) on the tracks show that the centers could not be satisfactorily located.

Within each circle is given the lowest barometric reading reported near the center. A blank indicates that no reports were available.

A wavy line indicates the axis of a trough or long oval area of low pressure.

U. S. DEPARTMENT OF AGRICULTURE.
Weather Bureau.
Willis L. Moore, Chief.
Published by authority of the Secretary of Agriculture.
Observations for the Weather Bureau are taken at 8 A. M. and 8 P. M., 75th Meridian time.

Chart II. Isobars, Isotherms, and Resultant Winds. July, 1895.

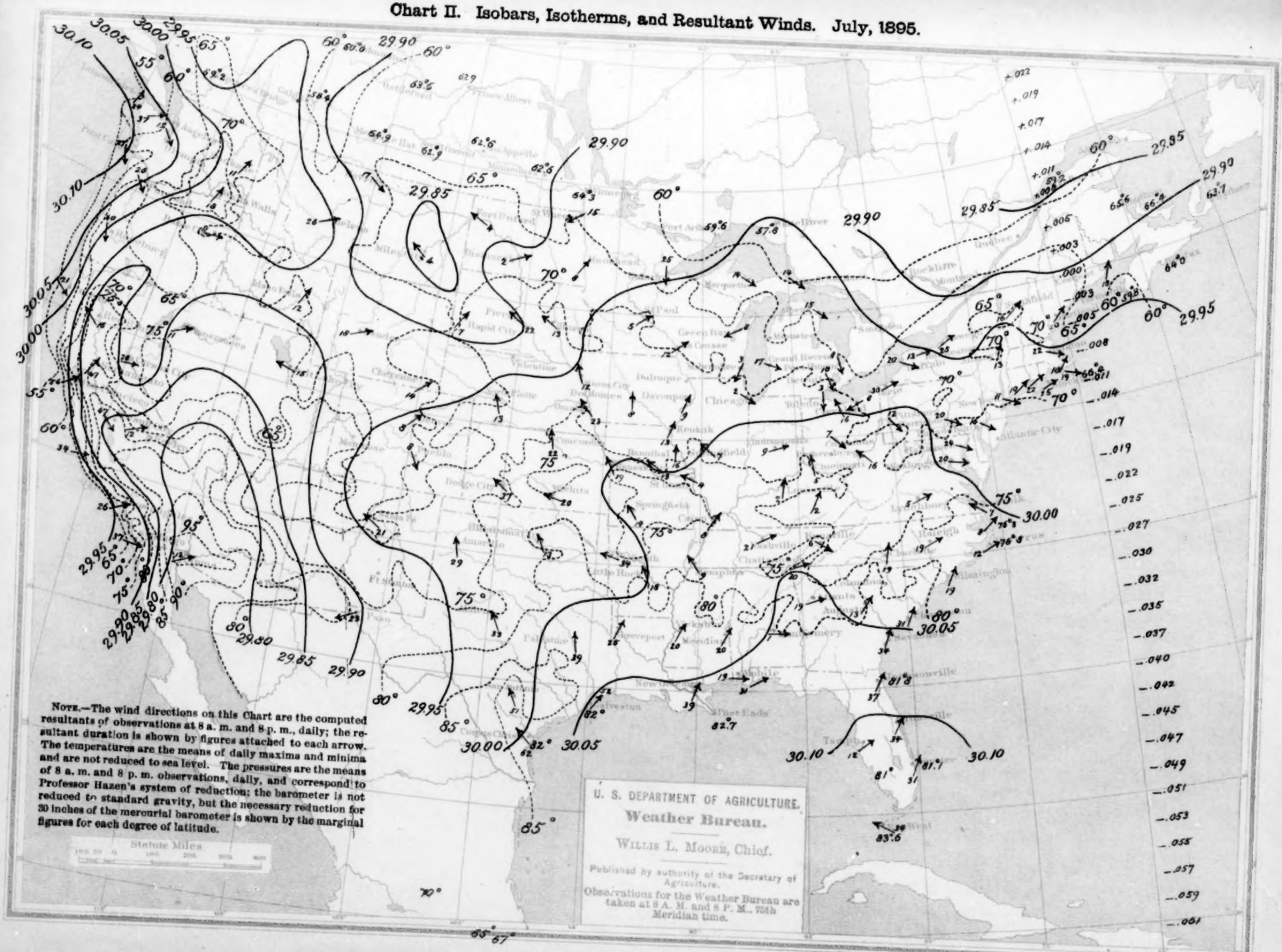


Chart III. Total Precipitation. July, 1895.

Chart IV. Tracks of Centers of High Areas. July, 1895.

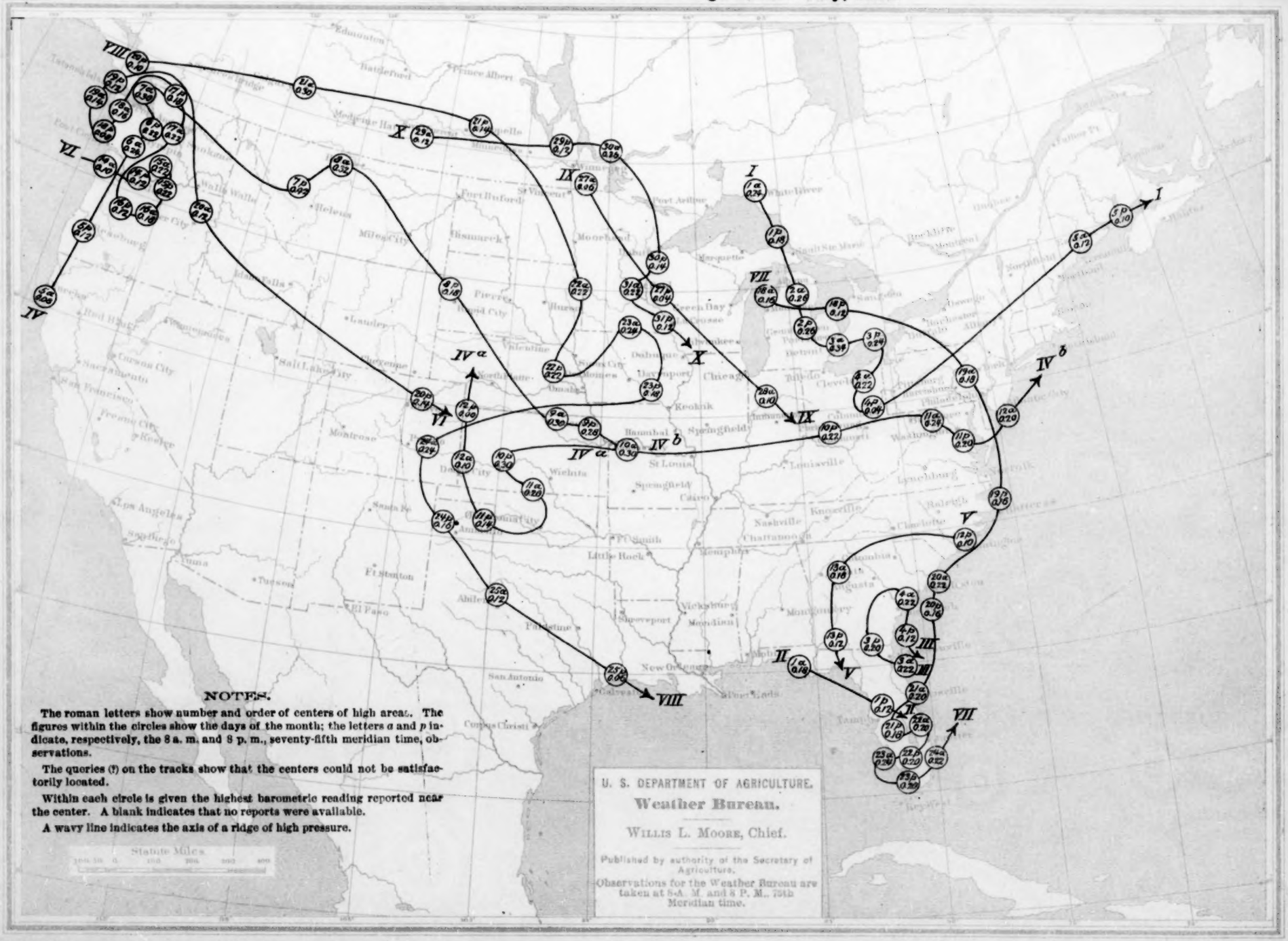
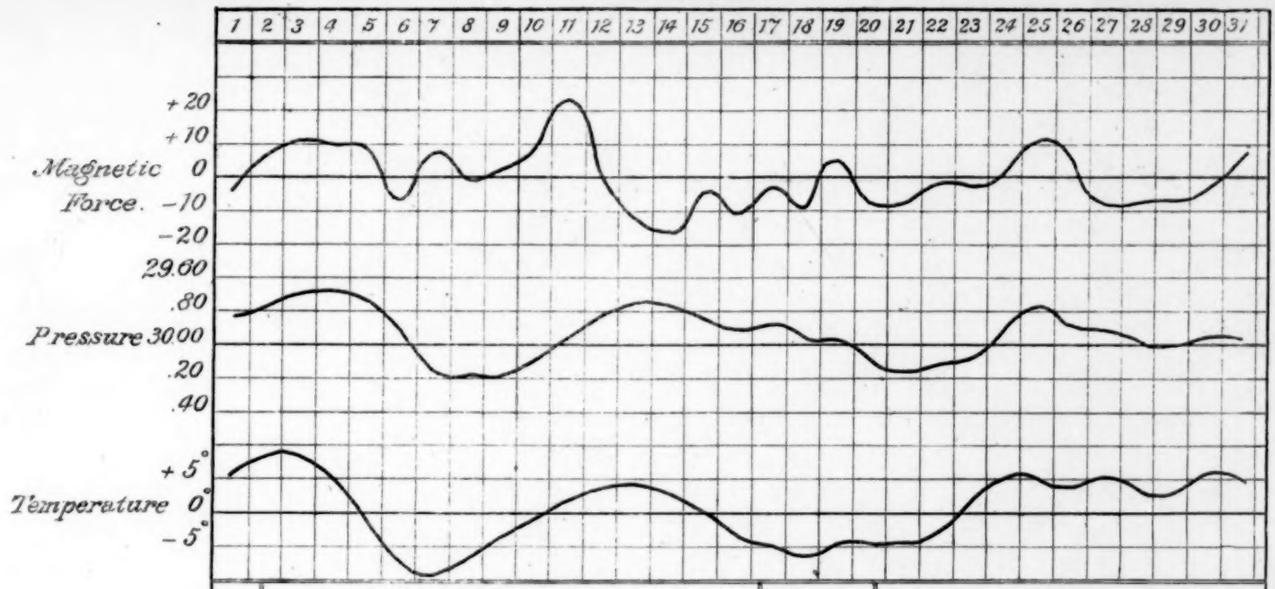


Chart V. Relative Variations of the Horizontal Magnetic Force and the Northwest Pressures and Temperatures.



July. 1895.	North-West Temperatures.							Pressure.	Horizontal Magnetic Force.				
				Variations.							Variations.		
	Calgary.	Salt Lake City	Williston	Calgary	S.L. City	Williston.	Means + 5.	10 North-West Stations.	Toronto.	Washington.	Toronto.	Washington.	Means + 7.
1	69	75	74	0	+2	+3	+7	29.81	436.6	50.2	+4	−11	−3
2	73	77	75	+4	+4	+4	+9	.78	437.3	51.6	+11	+3	+8
3	72	76	77	+3	+3	+6	+9	.71	437.7	51.8	+15	+5	+11
4	68	73	76	−1	0	+5	+6	.69	437.7	51.6	+15	+3	+10
5	63	65	70	−6	−8	−1	0	.71	437.5	51.7	+13	+4	+10
6	56	60	60	−13	−13	−11	−7	.87	436.7	49.1	+5	−22	−8
7	56	57	59	−13	−16	−12	−9	30.17	437.3	51.6	+11	+3	+8
8	59	58	59	−10	−15	−12	−7	.18	436.9	50.2	+7	−11	−1
9	63	62	65	−6	−11	−6	−3	.19	437.0	51.0	+8	−3	+4
10	64	61	68	−5	−12	−3	−2	.07	438.0	51.1	+18	−2	+9
11	66	64	70	−3	−9	−1	+1	29.97	439.3	52.6	+31	+13	+23
12	67	67	72	−2	−6	+1	+3	.84	436.5	50.1	+3	−12	−4
13	64	71	71	−5	−2	0	+3	.75	436.1	49.0	−1	−23	−11
14	62	75	71	−7	+2	0	+3	.79	435.3	48.7	−9	−26	−17
15	58	72	71	−11	−1	0	+1	.85	437.0	49.6	+8	−17	−4
16	54	70	65	−15	−3	−6	−3	.90	436.2	49.0	0	−23	−11
17	51	67	66	−18	−6	−5	−5	.86	437.4	49.4	+12	−19	−3
18	51	62	64	−18	−11	−7	−7	.95	436.1	49.7	−1	−16	−8
19	54	63	65	−15	−10	−6	−5	.97	437.3	51.1	+11	−2	+6
20.	56	64	63	−13	−9	−8	−5	30.12	436.4	49.3	+2	−20	−8
21	57	65	65	−12	−8	−6	−4	.17	435.8	49.9	−4	−14	−8
22	59	67	64	−10	−6	−7	−3	.14	437.0	50.0	+8	−13	−2
23	64	71	68	−5	−2	−3	+2	.07	436.8	49.9	+6	−14	−3
24	66	75	72	−3	+2	+1	+5	29.89	437.2	50.4	+10	−9	+1
25	66	74	73	−3	+1	+2	+5	.79	438.1	51.6	+19	+3	+12
26	63	74	73	−6	+1	+2	+4	.90	437.2	50.8	+10	−5	+4
27	63	76	75	−6	+3	+4	+5	.93	437.5	48.0	+13	−33	−9
28	63	72	73	−6	−1	+2	+3	.98	436.7	49.0	+5	−23	−8
29	66	73	69	−3	0	−2	+3	30.03	436.5	49.5	+3	−18	−7
30.	66	76	71	−3	+3	0	+5	29.99	436.6	50.1	+4	−12	−3
31	66	74	72	−3	+1	+1	+5	.96	438.4	50.1	+22	−12	+6

High Areas of the North Pacific Coast Region and their Associated Phenomena.

Chart VI. September.

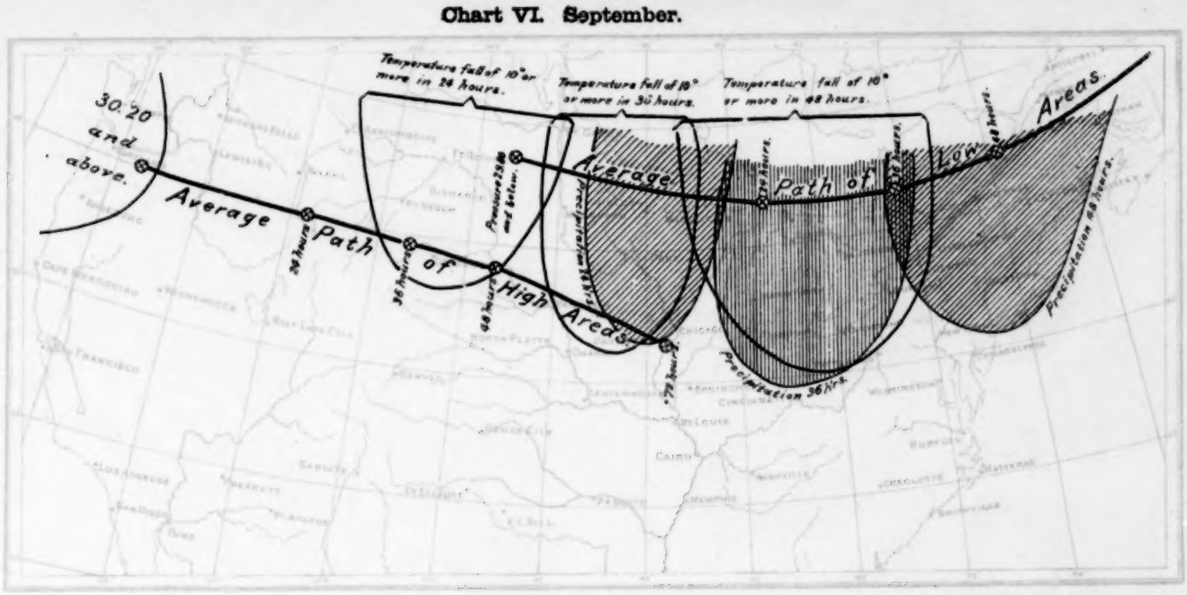


Chart VII. October.

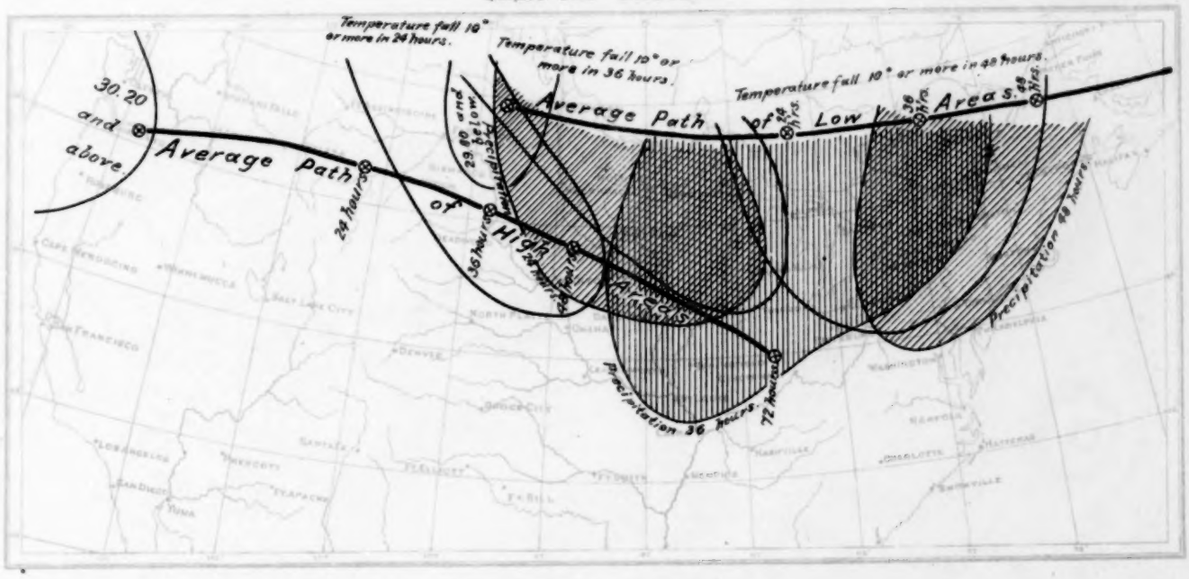


Chart VIII. November.